

Transportation Analysis Updates in Santa Barbara County

Prepared by:

County of Santa Barbara,
Planning and Development Department

FEHR  PEERS

July 2020

Table of Contents

Chapter 1 – Introduction	1
Chapter 2 – Transportation Analysis Implications for SB 743	3
What is SB 743?	3
Why did the State adopt SB 743?	3
How does LOS compare to VMT?	4
Which projects does SB 743 affect?.....	4
Can Santa Barbara County still consider LOS?	5
Does the State provide guidance to implement SB 743?	6
Are there other CEQA changes for transportation impacts?	6
What steps will the County take to implement SB 743?	7
Chapter 3 –VMT Methodology and County VMT	8
VMT Estimation.....	8
SBCAG RTDM Overview.....	9
VMT Methodology and Metrics	10
Land Use Projects and Plans.....	11
VMT Metrics	11
Transportation Projects	13
VMT Methodology	13
VMT Metrics	13
VMT Geographic Boundary.....	13
Calculating County VMT.....	15
Chapter 4 – VMT Screening Criteria and Analysis.....	16
VMT Screening Criteria	16
VMT Screening Summary	26
VMT Analysis Methodology.....	29
Chapter 5 – VMT Thresholds of Significance.....	32
VMT Threshold Options	32
VMT Thresholds for Land Use Projects and Plans.....	33
VMT Thresholds for Transportation Projects	34
VMT Threshold Summary	34
Chapter 6 – VMT Mitigation Options	36

Mitigation Overview.....36
VMT Mitigation through TDM.....36
TDM Strategies.....37
Mitigation Program Concepts.....39

Attachment A – Pilot Project Testing

Attachment B – VMT Mitigation Strategies

Chapter 1 – Introduction

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743¹ (Steinberg, 2013) into law and started a process that fundamentally changed the criteria for determining the significance of a project's transportation impacts under the California Environmental Quality Act (CEQA). Specifically, SB 743 required new criteria that "... promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." [PRC Section 21099(b)(1)] To that end, on December 28, 2018, the California Natural Resources Agency adopted revisions to the Guidelines for the Implementation of the California Environmental Quality Act² (CEQA Guidelines) that state "vehicle miles traveled is the most appropriate measure of transportation impacts." [CEQA Guidelines Section 15064.3] With this change, the County of Santa Barbara (County) and other public agencies can no longer use automobile delay, as measured by "level of service" (LOS) or similar measures of vehicular capacity or traffic congestion, to assess transportation impacts under CEQA. [PRC Section 21099(b)(2) and CCR Section 15065.3(a)]

CEQA Guidelines Section 15064.3(a) defines vehicle miles traveled (VMT) as "the amount and distance of automobile travel attributable to a project." Depending on the type of project being analyzed, the VMT calculation can include all vehicle-trips, including passenger and commercial vehicles, or only cars and light-duty trucks. For example, VMT can measure the number of car trips generated by a proposed office complex and distances cars will travel to and from the complex.

Government Code Section 15064.3(c) requires that public agencies begin using VMT to assess transportation impacts under CEQA on July 1, 2020. The County's current thresholds of significance use LOS-based metrics to assess transportation impacts. These thresholds are now null and void. Therefore, the County is developing new thresholds of significance that comply with SB 743.

This report's principal purpose is to help the County develop new methods and thresholds for using VMT to assess transportation impacts under CEQA. The report summarizes SB 743 and related State laws. It also presents the County Planning and Development Department's (P&D) recommendations for the following topics:

- Methodology for calculating baseline VMT.
- Screening criteria for identifying projects that would cause a less than significant transportation impact without a detailed VMT study.

¹ Codified in the California Public Resources Code (PRC), Division 12, Chapter 2.7, Section 21099.

² Codified in the California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, Section 15000 et seq.

- VMT thresholds for determining the significance of transportation impacts.
- Mitigation measures to reduce VMT and significant transportation impacts.

P&D developed the recommendations in this report with assistance from Fehr & Peers. It also consulted with staff from the County Public Works Department, Santa Barbara County Association of Governments (SBCAG), and Governor’s Office of Planning and Research (OPR). P&D’s recommendations generally follow the technical advice and recommendations in OPR’s *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory).³

This report’s recommendations only apply to the unincorporated areas of Santa Barbara County. All references to “county” or “Santa Barbara County” refer to the unincorporated areas and have no effect on incorporated areas (i.e., cities).

This report includes the following chapters and content:

- **Chapter 2: Transportation Analysis Implications for SB 743** – This chapter provides an overview of SB 743 and the related sections of the CEQA Guidelines. It also explains how these laws affect the County’s analysis of transportation impacts under CEQA.
- **Chapter 3: VMT Methodology and County VMT** – This chapter describes the methodology and the metrics used to estimate VMT. This chapter also describes the process for establishing the county VMT.
- **Chapter 4: VMT Screening Criteria and Analysis** – This chapter provides the criteria that can be used to streamline review of land use and transportation projects that will help reduce VMT, and describes the VMT analysis process for projects that do not meet the screening criteria.
- **Chapter 5: VMT Impact Thresholds** – This chapter summarizes the VMT threshold options considered in the county and presents the recommended VMT impact thresholds.
- **Chapter 6: VMT Mitigation** – For projects that are determined to have potential VMT impacts, this chapter provides an overview of the mitigation options to reduce VMT.

³ Governor’s Office of Planning and Research (OPR), *Technical Advisory on Evaluating Transportation Impacts in CEQA*, 2018. http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

Chapter 2 – Transportation

Analysis Implications for SB 743

What is SB 743?

SB 743 changed how public agencies analyze transportation impacts under CEQA. It shifted the focus from automobile delay, vehicular capacity, and traffic congestion to automobile travel, fuel consumption, and emissions. The intent of this change is to reduce per-capita vehicle travel, which, in turn, would help reduce greenhouse gas emissions and combat climate change.

SB 743 directed OPR and the California Natural Resources Agency, respectively, to prepare and adopt revisions to the CEQA Guidelines that reflect this change. [PRC Section 21099(b)(1)] SB 743 also states, “Upon certification of the guidelines by the ... Natural Resources Agency ... automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment.” [PRC 21099(b)(2)]

In response to SB 743, OPR proposed preliminary and revised revisions to the CEQA Guidelines in 2014 and 2016, respectively. OPR selected VMT as the new metric for determining the significance of a project’s transportation impacts under CEQA.

On December 28, 2018, the California Natural Resources Agency certified and adopted the proposed revisions to the CEQA Guidelines. Most importantly, the revisions added Section 15064.3, Determining the Significance of Transportation Impacts, to the CEQA Guidelines. In part, Section 15064.3 replaces LOS with VMT and provides a basis for streamlined review of land use and transportation projects that will help reduce VMT. CEQA Guidelines Section 15064.3(c) granted public agencies a grace period until July 1, 2020, to implement a VMT metric as part of their environmental review process.

Why did the State adopt SB 743?

SB 32 (Pavley, 2016) requires California to reduce greenhouse gas (GHG) emissions 40 percent below 1990 levels by 2030. Approximately one-half of California’s GHG emissions come from the transportation sector. The State legislature intended SB 743 to encourage land use and transportation planning decisions that will help meet this target and effect new methodologies under CEQA that promote the following State goals:

- Reduce GHG emissions and traffic-related air pollution,
- Promote the development of a multimodal transportation system, and

- Provide clean, efficient access to destinations.

Changes to driving conditions that increase automobile delay and travel times are an important consideration for traffic operations and management. Nonetheless, these changes do not fully describe environmental effects associated with fuel consumption, emissions, and public health. VMT-based impact criteria will incorporate these environmental effects into CEQA and, therefore, will help achieve the State goals listed above.

Additional Online Resources:

Technical Advisory on Evaluating Transportation Impacts in CEQA, OPR, December 2018
http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

What is VMT? The following website includes a short video explaining the basic components of VMT along with additional background on SB 743. <http://www.fehrandpeers.com/sb743/>

How does LOS compare to VMT?

Conventional approaches to transportation impact analysis tend to study changes in automobile delay, as described by LOS or similar measures of vehicular capacity or traffic congestion. SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers (LOS), to measuring the impacts of driving (VMT).

While LOS measures the driver’s experience traveling through a specific point on the roadway network (e.g., through an intersection), VMT captures both the number of trips and the length of those trips on the entire roadway network. For example, a proposed local retail development intended to serve nearby residents may result in a significant LOS impact because it adds vehicle trips to a congested intersection. In comparison, the same project may result in a less than significant VMT impact because it reduces the distance that nearby residents must travel to obtain basic goods and services.

LOS refers to “Level of Service,” a metric that assigns a letter grade to network performance based on the amount of congestion experienced by drivers, ranging from LOS A to LOS F. LOS A indicates free flow operations whereas LOS F indicates congested operations. LOS is typically reported for individual intersections during the most congested time of day.

VMT refers to “Vehicle Miles Traveled,” a metric that accounts for the number of vehicle trips generated plus the length or distance of those trips. For transportation impact analysis, VMT is generally expressed on a daily basis for a typical weekday.

Which projects does SB 743 affect?

CEQA Guidelines Section 15064.3(b) describes criteria for analyzing two types of projects – land use development projects and transportation infrastructure projects.

- **Land Use Projects** – CEQA continues to require transportation impact analyses for development projects and land use plans (e.g., comprehensive plans and community plans). However,

transportation impact analyses and studies conducted as part of the CEQA process must now base project impacts on VMT. CEQA Guidelines Section 15064.7 encourages municipalities to develop thresholds of significance to determine the significance of environmental impacts. CEQA Guidelines Section 15064.3(b)(1), Land Use Projects, states, “[v]ehicle miles traveled exceeding an applicable threshold of significance may indicate a significant [transportation] impact. Projects that decrease vehicle miles traveled ... should be presumed to have a less than significant transportation impact.”

- **Transportation Projects** – Prior to SB 743, transportation projects that increased automobile delay, such as narrowing a roadway to provide a bicycle lane or adding a pedestrian scramble phase at a signalized intersection, may have resulted in a significant transportation impact under CEQA. With SB 743 in place, CEQA Guidelines Section 15064.3(b)(2), Transportation Projects, states, “[t]ransportation projects that reduce, or have no impact on, vehicle miles should be presumed to cause a less than significant transportation impact.” As a result, analyses of roadway-widening projects will now need to consider the projects’ potential to induce vehicle travel demand due to increased capacities that may make driving a more attractive option and, therefore, could increase VMT and result in significant environmental impacts.

Can Santa Barbara County still consider LOS?

SB 743 and CEQA Guidelines Section 15064.3 prevent the County from using LOS or similar measures of automobile delay, vehicular capacity, or traffic congestion for determining the significance of a project’s transportation impacts under CEQA. Rather, the County must now use VMT metrics to help evaluate transportation impacts. Chapter 19, Thresholds of Significance for Transportation Impacts, of the County Environmental Thresholds and Guidelines Manual (County of Santa Barbara, 2018) and the related initial study/negative declaration prototype contain criteria and thresholds of significance that incorporate LOS or similar metrics. As a result, the County can no longer use these particular criteria and thresholds to analyze transportation impacts under CEQA.

Nonetheless, SB 743 does not prevent the County from considering LOS or similar metrics as part of development review, community plans, or transportation plans outside of the CEQA process. For example, the Comprehensive Plan, including some community plans, contains LOS-based policies and standards. New projects must still comply with these policies and standards. As a result, the County may still require that projects provide roadway improvements when necessary to accommodate project-generated traffic and maintain acceptable roadway operating conditions.

To ensure that projects continue to comply with existing LOS-based policies and standards in the Comprehensive Plan, the Public Works Department is currently updating the County Engineering Design Standards (County of Santa Barbara, September 2011). The Engineering Design Standards will provide an overview of LOS-based transportation analyses that are still required for development review, land use

planning, and other non-CEQA processes. The County must apply these policies and standards outside of the CEQA process.

Does the State provide guidance to implement SB 743?

Chapter 1 cites two sources that provide advice, recommendations, and/or criteria to help implement SB 743. First, CEQA Guidelines Section 15064.3 addresses the purpose, criteria for analyzing transportation impacts, and applicability of VMT-based metrics. It also includes examples of land use and transportation projects that should have a less than significant transportation impact.

Second, the OPR Technical Advisory contains general principles and specific recommendations. It begins with an introduction and background information on VMT. The body of the advisory recommends screening criteria and numeric thresholds for land use plans and residential, office, retail, and other projects. However, the advisory is not binding and public agencies may use its advice and recommendations at their discretion. Therefore, the County and other public agencies must make their own specific decisions about assessment of VMT, thresholds of significance, and mitigation measures.

Are there other CEQA changes for transportation impacts?

In response to SB 743, the California Natural Resources Agency also adopted revisions to Section XVII (formerly Section XVI), Transportation, of Appendix G, Environmental Checklist Form, of the CEQA Guidelines. Section XVII contains four questions (a – d) for determining if a project may have a significant transportation impact. Question (b) relates to VMT; projects will ordinarily have a significant transportation impact if they conflict with CEQA Guidelines Section 15064.3. Questions (a), (c), and (d) address non-VMT topics. Specifically, the revised Section XVII contains the following questions:

- a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?
- c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- d) Would the project result in inadequate emergency access?

Mitigation measures or project modifications to reduce the level of significance may be required if a project exceeds any of these thresholds.

What steps will the County take to implement SB 743?

The implementation of SB 743 is a four-step process. First, the County must select the methodology for estimating VMT and establishing its baseline VMT. This is an important first step because the County's baseline VMT will affect the County's VMT threshold; that is, a VMT threshold is typically a numeric standard expressed in relation to (e.g., below or above) the baseline VMT.

Next, the County needs to develop VMT screening criteria to quickly identify projects that would have a less than significant impact on VMT and, therefore, would not require further VMT analysis. The County also needs to develop VMT thresholds of significance that are appropriate for projects and plans in the context of the built environment and travel characteristics in unincorporated Santa Barbara County. Finally, the County should identify potential mitigation measures to reduce VMT for projects that may result in significant transportation impacts.

Implementation Steps



Chapter 3 –VMT Methodology and County VMT

This chapter describes the methodology and metrics for estimating VMT for the unincorporated areas of Santa Barbara County. The County will use the estimates to develop VMT screening criteria (Chapter 4) and VMT thresholds of significance (Chapter 5) as part of the SB 743 implementation process.

VMT Estimation

CEQA Guidelines Section 15064.3(b)(4) states, “[a] lead agency may use models to estimate a project’s vehicles miles traveled quantitatively.” Appendix 1, Considerations About Which VMT to Count,” of the OPR Technical Advisory offers additional guidance on using models by stating, “[t]ravel demand models, sketch models, spreadsheet models, research, and data can all be used to calculate and estimate VMT.”

Available Tools

Various travel demand models and sketch planning tools are available for estimating VMT. Two travel demand models are available for the unincorporated areas of Santa Barbara County: Caltrans California Statewide Travel Demand Model (CSTDM) and SBCAG Regional Travel Demand Model (SBCAG RTDM). Numerous companies offer software and web-based sketch planning tools.

Sketch planning tools (e.g., CalEEMod, Sketch 7, and Urban Footprint) estimate project generated VMT or percent change in VMT. Sketch planning tools are generally easier to use and less expensive than sophisticated travel demand models. However, they have limitations. For example, sketch planning tools generally examine trips added by a project but do not account for changes in travel patterns that may occur as a result of a new development, or existing trips that may shift to other, similar locations as a result of the new development. Therefore, sketch planning tools are best suited for testing VMT mitigation measures. Staff and Fehr & Peers do not recommend the use of existing sketch planning tools for estimating VMT or developing VMT thresholds of significance.

Travel demand models are generally the best tools for estimating VMT for large regions like the county. A travel demand model estimates future travel patterns and traffic volumes. It incorporates current traffic data and predicted land use, population, travel patterns, and other factors unique to a particular region.

The CSTDM focuses on State highways and long, interregional/intrastate travel. As a statewide model, the CSTDM uses large geographical units called transportation analysis zones (TAZs) and contains limited details on local transportation networks. For example, the CSTDM may omit arterials and collector roads in the county. As a result, the CSTDM is most appropriate for projects that only require statewide

aggregated data rather than local, project-level forecasts. In contrast, the SBCAG RTDM is the only county-specific travel demand model available for estimating VMT. It focusses on local land uses and road networks. For these reasons, Fehr & Peers used the SBCAG RTDM as the basis for estimating VMT for the unincorporated areas of Santa Barbara County.

SBCAG RTDM Overview

The SBCAG RTDM is a four-step travel demand model that performs the following classical modeling steps:

1. Trip generation (number of trips),
2. Trip distribution (where the trips go),
3. Mode choice (how the trips are divided among the available modes of travel), and
4. Trip assignment (route the trips will take).

The SBCAG RTDM uses smaller TAZs than the CSTDM to help estimate VMT for the region. The model contains land use and socio-economic data for each TAZ. In part, the model generates a certain number of trips from each TAZ and then identifies the TAZ where each trip ends. This analysis provides origin and destination points within the region and calculates the number and distance of trips between each pair of TAZs. Approximately 360 TAZs cover the unincorporated areas of the county. The model also shows the mode that people use to travel between origins and destinations. That is, whether people take a private vehicle, public transit, or carpool to and from work or another destination.

RTDM Refinements

The SBCAG RTDM has several characteristics that limit its use for estimating VMT for individual projects and small geographic areas. Fehr & Peers took the following steps to refine the RTDM to minimize these limitations.

Travel Outside Model Boundaries

The SBCAG RTDM (and all regional travel demand models) excludes VMT that occurs outside of the model boundaries (i.e., outside Santa Barbara County). OPR's Technical Advisory (OPR, 2018) recommends full counting of VMT, not just the VMT inside the model boundaries. To account for trips traveling outside of the SBCAG RTDM model boundaries, Fehr & Peers used external zones outside of the RTDM boundaries to estimate VMT for those traveling through the county and those traveling between Santa Barbara County and areas to the north (e.g., San Luis Obispo County) and south (e.g., Ventura County).

Fehr & Peers used the SBCAG RTDM and CSTDM to aggregate the VMT data from the external zones to determine the percentage of trips traveling to other regions, such as Ventura and San Luis Obispo counties. Table 1, below, provides a summary of the percentage of trips leaving from or arriving to the RTDM model boundaries. A relatively small percentage of trips traveling to or from the unincorporated areas of the county leave Santa Barbara County. In comparison, a higher percentage of trips coming to and going from incorporated cities leave Santa Barbara County. Therefore, Fehr & Peers was only required to make trip length adjustments to approximately 4 percent of trips in the RTDM.

TABLE 1: PERCENTAGE OF TRIPS TRAVELING TO/FROM SURROUNDING REGIONS

Geographic Area	Percent to External Zones	
	San Luis Obispo	Ventura
Unincorporated Santa Barbara County	2%	2%
Incorporated Cities	4%	5%

The daily VMT totals included in the Fast Forward 2040: SBCAG Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) (SBCAG, 2017) do not account for VMT that occurs outside of the county. This explains why the daily VMT totals cited in this report, which capture the full travel distance for trips leaving the model boundaries, are higher than those reported in the SBCAG RTP/SCS.

Origin – Destination Data. The SBCAG RTDM estimates travel demand for the entire model area by tracking the origin and destination of each vehicle trip and then assigning that vehicle to the roadway network based on travel distance and travel speeds. Fehr & Peers had to reprocess the VMT forecasts in the SBCAG RTDM to determine where the VMT was coming from and which area was responsible for generating it.

Baseline Environmental Setting. The SBCAG RTDM estimates VMT for 2010 and 2040. However, environmental documents must typically describe the baseline environmental setting as it exists at the time the lead agency publishes a notice of preparation, or if the lead agency does not publish a notice of preparation, at the time the lead agency commences environmental review. Therefore, Fehr & Peers used the SBCAG RTDM’s VMT forecasts to establish specific VMT values for specific years by interpolating between the 2010 base year and 2040 future year. The RTDM’s 2040 future year VMT forecast reflects future conditions assuming no changes in current conditions, including no new measures to reduce VMT (e.g., business as usual).

VMT Methodology and Metrics

CEQA Guidelines Sections 15064.3(b)(1) and 15064.3(b)(2) describe the criteria for analyzing transportation impacts for land use projects and transportation projects. Staff worked with Fehr & Peers

to develop separate VMT methodologies and metrics for both project types. The criteria for land use projects may also apply to land use plans.

Land Use Projects and Plans

VMT Methodology

Fehr & Peers determined an origin-destination (OD) VMT methodology to be the appropriate method for estimating the VMT of land use projects and plans. The OD VMT methodology estimates the VMT generated by land uses in a specific geographic area, such as the unincorporated areas of the county or a community plan area. Specifically, the SBCAG RTDM tracks all vehicles traveling to and from the defined geographic area and uses the number of trips and length of trips to estimate VMT.⁴

VMT Metrics

CEQA Guidelines Section 15064.3(b)(4) states, “[a] lead agency has discretion to choose the most appropriate methodology to evaluate a project’s [VMT], including whether to express the change in absolute terms, per capita, per household or in any other measure.” VMT can be expressed as an efficiency-based metric (e.g., VMT per resident, VMT per employee, or VMT per service population) or as absolute metric (e.g., total VMT). OPR recommends expressing VMT as an efficiency-based metric to allow for more direct comparisons to baseline conditions. VMT fluctuates based on changes in population, employment, economic activity, or due to expanding transportation options (e.g., Uber, Lyft, Micro-Mobility, and autonomous vehicles). Therefore, it is easier to compare changes to VMT at the unit level rather than absolutely. Following direction from the OPR Technical Advisory, transportation planners/engineers should estimate project VMT using the SBCAG RTDM and express VMT in the following three variable formats for land use plans and retail, residential, and employment land-use projects, respectively:

- **Total VMT:** VMT generated by all land uses in a defined geographic area. Total VMT reflects all vehicle-trips (passenger and commercial vehicles) assigned on the roadway network. The County applies this metric to retail projects and the cumulative analysis for land use plans.
- **VMT per Service Population:** VMT generated by all land uses in a defined geographic area divided by the total number of residents and the total number of employees in the geographic area. VMT per service population reflects all vehicle-trips (passenger and commercial vehicles) assigned on the roadway network. The County applies this metric to land use plans.

⁴ The OD VMT method requires two major data inputs. The first data input is the set of vehicle trip tables (including all vehicle trips by vehicle mode and by time of day) that contain the number of trips between each zone in the model. The second data input is the set of highway distance skims (by vehicle mode and by time of day) that allows the trip distances for each OD pair to be based on congested travel time, speed, and cost from the final highway assignment. The total VMT matrices are then generated by multiplying the final OD trip tables with the corresponding highway distance skims.

- Home-based VMT per Resident:** VMT generated from travel between residents' homes and other destinations, such as work, school, or household errands, in a defined geographic area divided by the total number of residents in the geographic area. This metric excludes trips between two non-residential locations, such as from the store to the coffee shop. Home-based VMT per resident reflects all passenger vehicles (cars and light duty trucks) assigned on the roadway network. Figure 1, below, illustrates the home-based trips that are included in this VMT metric. The County applies this metric to residential projects.

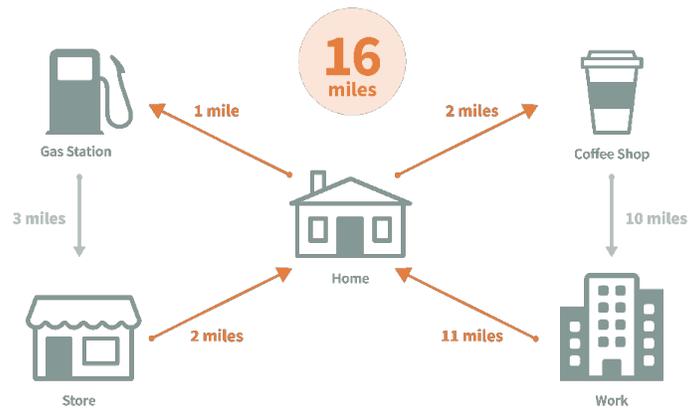


Figure 1 - Home-Based VMT per Resident

- Home-based work VMT per Employee:** VMT generated from travel between an employee's home and work in a defined geographic area divided by the number of employees in the geographic area. Home-based work VMT per employee reflects all passenger vehicles (cars and light duty trucks) assigned on the roadway network. Figure 2, below, illustrates the home-based work trips that are included in this metric. The County applies this metric to employment projects.

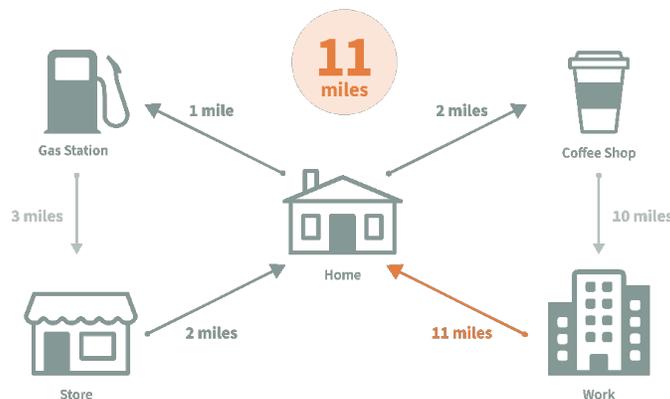


Figure 2 - Home-Based Work VMT per Employee

Transportation Projects

VMT Methodology

CEQA Guidelines Section 15064.3(b) contains separate criteria for analyzing transportation impacts for transportation projects as compared to land use projects. Fehr & Peers determined a boundary VMT methodology to be the appropriate method for estimating the VMT of transportation projects. The boundary methodology considers all travel on roadways in a geographic area, including vehicles that are traveling on the roadways but do not have an origin or destination in the area which are often referred to as through trips. Specifically, the SBCAG RTDM tracks all vehicles traveling on the roadway network and calculates the number of trips on each roadway segment and length of each roadway segment to estimate the VMT in the defined geographic area.

VMT Metrics

The boundary methodology can analyze the net change in VMT for transportation projects using absolute metrics. For example, transportation planners/engineers can use the SBCAG RTDM to compare pre-project VMT (i.e., existing, or baseline) to post-project VMT (i.e., future) within a study area. The study area should reflect the project's area of influence. Large projects affecting regional travel may define the study area as the entire county, while small projects may only consider the local community.

Transportation planners/engineers calculate the change in net VMT for transportation projects as follows:

- **Total Roadway VMT:** VMT generated by the number of vehicles on each roadway segment and the length of each roadway segment in the defined geographic area. Total Roadway VMT reflects all vehicles (passenger and commercial vehicles) assigned on the roadway network.

Depending on the size and location of the roadway widening or other transportation project, the SBCAG RTDM may not fully capture the increase in VMT due to the induced travel demand (e.g., change in travel patterns). Transportation projects, such as roadway expansion projects that increase the number of lane-miles, can change travel times, routes, mode choice, trip generation, and land use development patterns. All of these factors can influence VMT. In these cases, the analysis should compare the percent increase in lane miles (e.g., percent change in total lane miles that will result from the project) in the study area to the existing total roadway VMT to determine if additional induced travel demand would occur. The OPR Technical Advisory and California Department of Transportation (Caltrans) Draft Transportation Analysis Framework (Caltrans, 2020) provide step-by-step guidance for estimating VMT for roadway expansion projects.

VMT Geographic Boundary

The SBCAG RTDM estimates VMT as a daily average for each of the various metrics described in the previous sections (i.e., total VMT, VMT per service population, home-based VMT per resident, home-based work VMT per employee, and total roadway VMT). Each VMT metric requires a geographic

boundary to define the extent of data to select and analyze. The average daily VMT can change based on the chosen boundary. CEQA Guidelines Section 15064.3 does not provide a recommended geographic boundary; rather, it defers to lead agencies to choose a geographic boundary to estimate VMT.

The OPR Technical Advisory (page 15) recommends measuring VMT as regional VMT (i.e., VMT generated within all incorporated cities and unincorporated areas of a region) or as city VMT (i.e., VMT generated within a certain incorporated city) for residential projects. However, the advisory does not specifically define "region" and does not provide explicit direction to counties. To explore different options, Fehr & Peers used the SBCAG RTDM to estimate VMT for the following geographic boundaries:

- SBCAG Region (entire Santa Barbara County, including incorporated cities and unincorporated areas)
- Unincorporated areas of the county (entire Santa Barbara County, excluding incorporated cities)
- Community Plan Areas
- Housing Market Areas

Staff and Fehr & Peers recommend setting the unincorporated areas of the county as the geographic boundary for estimating VMT. Staff and this report refer to VMT for the unincorporated areas of the county as "county VMT." Establishing the unincorporated areas of the county as the geography for estimating VMT aligns with the region that the County has land use jurisdiction over per the County Comprehensive Plan. Since the unincorporated county land use context is diverse and different from the incorporated cities, it is important to consider planning goals and policies that reflect the unincorporated area. The following statistics illustrate the diversity and difference between the unincorporated areas of the county and incorporated cities:

- Santa Barbara County (incorporated and unincorporated areas combined) is approximately 2,748 square miles.
- The incorporated cities represent approximately 2.6 percent of the land area and 68.6 percent of the population.
- The unincorporated areas represent approximately 97.4 percent of the land area and 31.4 percent of the population.⁵

⁵ Santa Barbara County is 2,748 square miles and is comprised of eight incorporated cities (71 square miles), Channel Islands (196 square miles), Vandenberg Air Force Base (156 square miles), and Los Padres National Forest (1,077 square miles). The population statistics are from *Regional Growth Forecast 2050 Santa Barbara County* (SBCAG, January 2019).

This geographic and demographic data demonstrate that the unincorporated county is primarily rural whereas the incorporated cities are largely urban. Additionally, the unincorporated county is lower in employment, service, and residential density, and has less access to transit than the incorporated cities. Establishing unincorporated areas as the geographic boundary is appropriate because it reflects the differences in the built environment and land use context as compared to the incorporated cities, and supports the County’s ability to establish thresholds that reflect the specific goals and policies in the County Comprehensive Plan. Furthermore, limiting the geographic boundary to the unincorporated areas allows the County to address its specific contribution to statewide VMT, rather than addressing the VMT generated by more urbanized areas within Santa Barbara County.

Calculating County VMT

Fehr and Peers calculated county VMT using the SBCAG RTDM. Table 2 presents county VMT for SBCAG’s base year (2010) and future year (2040) for (1) total VMT per service population, (2) home-based VMT per resident, and (3) home-based work VMT per employee.

TABLE 2: COUNTY VMT¹

Model	VMT Metrics		
	Total VMT per Service Population	Home-Based VMT per Resident	Home-Based Work VMT per Employee
2010 Base Year Model	35.4	15.0	15.9
2040 Future Year Model	41.4	15.9	15.6

Note: 1. County VMT only represents the unincorporated areas of Santa Barbara County.

To validate the county VMT data in Table 3, Fehr & Peers compared data from the 2010-2012 California Household Travel Survey (CHTS) (Caltrans, June 2013) to the SBCAG RTDM home-based VMT data. The CHTS was a unique statewide, collaborative effort that gathered travel information for regional and statewide travel and environmental models. The similarity between the results from the CHTS and the SBCAG RTDM outputs for home-based VMT per capita for both the unincorporated areas of Santa Barbara County and the SBCAG region, as presented in Table 3, provide confidence in model accuracy. Both the CHTS and the SBCAG RTDM show a higher amount of VMT generated by households in the unincorporated areas of the county in comparison to the entire SBCAG region (including incorporated cities and unincorporated areas).

TABLE 3: HOME-BASED VMT PER RESIDENT

Data Source	Unincorporated County	SBCAG Region
SBCAG Model	15.00	12.30
CHTS	15.41	12.07

Chapter 4 – VMT Screening Criteria and Analysis

This chapter presents screening criteria that the County may use to identify land use and transportation projects that would have a less than significant impact related to VMT and, therefore, would not require further VMT analysis. If a project does not meet any of the screening criteria, further VMT analysis would be required. This chapter also describes the process for conducting a VMT analysis.

VMT Screening Criteria

The OPR Technical Advisory provides “screening thresholds” that lead agencies may use to determine when a land use or transportation project would typically be expected to cause a less than significant transportation impact. The County and Fehr & Peers reviewed OPR’s screening thresholds for their applicability in the county, which this report describes as “screening criteria.” The screening criteria would apply to projects that would likely reduce VMT in the county or generate a low amount of VMT in comparison to the county VMT. A project that meets at least one of the screening criteria, absent substantial evidence to the contrary, would not require further VMT analysis.

If a land use or transportation project meets the VMT screening criteria and, therefore, does not require a VMT analysis, the project may still be required to conduct a transportation study to determine consistency with County standards and policies and assess whether roadway operational improvements are necessary. To ensure that projects continue to comply with existing LOS-based policies and standards in the Comprehensive Plan, the County Public Works Department is currently updating the County Engineering Design Standards (County of Santa Barbara, Public Works, September 2011). The Engineering Design Standards will provide an overview of LOS-based transportation analyses that are still required for development review, land use planning, and other non-CEQA processes. The County must apply these policies and standards outside of the CEQA process.

Land Use Projects Screening Criteria

CEQA Guidelines Section 15064.3(b)(1) provides a basis for streamlined review of land use projects that will help reduce VMT. CEQA Guidelines Section 15064.3(b)(1), Land Use Projects, 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. Projects that decrease vehicle miles traveled ... should be presumed to have a less than significant transportation impact.”

A single-component land use project (e.g., residence, office, or store) only needs to meet one of the screening criteria. However, each component of a multiple-component project (e.g., residential/retail mixed-use development) must meet at least one applicable screening criterion.

The OPR Technical Advisory includes the following screening criteria for land use projects. Projects that do not meet any of the screening criteria require a detailed analysis of VMT, which may involve a VMT transportation study.

Project Size Screening

The OPR Technical Advisory (page 12) states that lead agencies may screen out projects that generate less than 110 average daily trips. When estimating the number of daily trips generated by a project, analyses should use the trip generation rates published by the Institute of Transportation Engineers or locally collected trip generated rates reviewed and approved by the County Public Works Department. Analyses should account for the trip generation of all uses on the project site when calculating the total number of daily trips.

Locally Serving Retail Screening

The OPR Technical Advisory (page 16) states that local serving retail projects, defined as retail uses that are less than 50,000 square feet (50 ksf) may be presumed to have an insignificant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of shortening trips and reducing the overall amount of vehicle travel.

Low VMT Area Screening

The OPR Technical Advisory (page 12) states that residential and employment projects located within a low VMT generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. OPR defines the low VMT screening criteria as home-based VMT per resident and home-based work VMT per employee that is at least 15 percent below the county VMT.

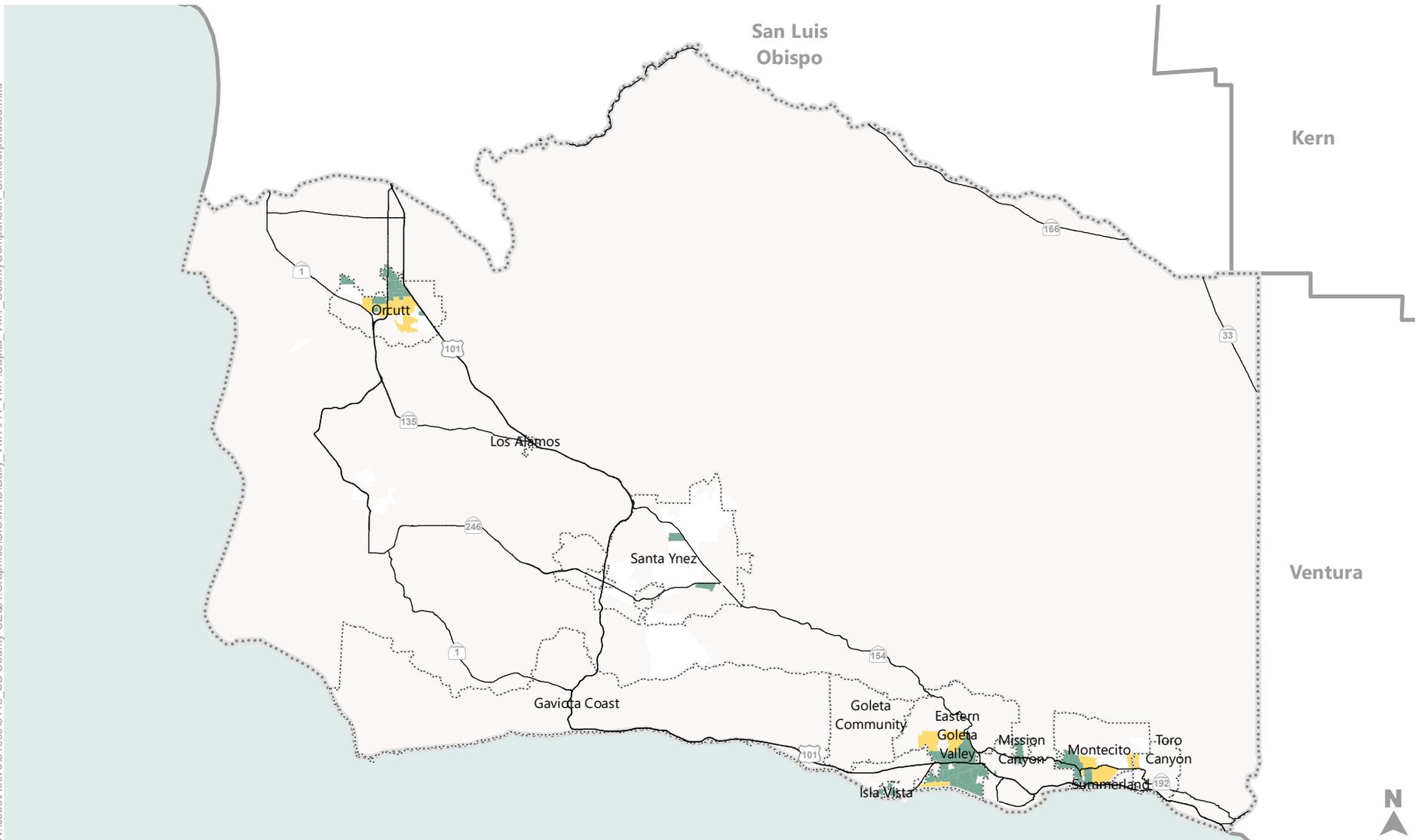
This screening applies to new projects that incorporate similar built environment features as those already located in the surrounding area, such as density, operations, or land use type, and the area already performs at least 15 percent below the county VMT. The presumption of low VMT generation may not be appropriate if the project land uses would alter the existing built environment in such a way as to increase the rate or length of vehicle trips. That is, if a proposed residential or employment project is radically different than the existing nearby residential or employment uses, then the proposed project's VMT characteristics will also likely be different and the low VMT trends for the existing uses cannot be used as a proxy for the new land use.

To determine the areas that would qualify for low VMT screening, Fehr & Peers used the SBCAG RTDM to measure VMT performance for individual TAZs located in the urban and inner-rural areas of the county.

Rural areas have low population densities and are not typically low VMT generators. Therefore, the County and Fehr & Peers did not consider these areas for low VMT area screening.

Figures 3 and 4 illustrate the screening for residential projects located in low VMT areas based on the home-based VMT per resident in comparison to the county VMT. Both figures present the same information with Figure 3 displaying the low VMT areas at a regional level and Figure 4 zoomed into the southern area of the county. Fehr & Peers estimated the VMT using base year SBCAG RTDM data for urban and inner-rural areas of the county. The County may use the VMT metrics illustrated in Figures 3 and 4 to screen residential projects from requiring further VMT analysis. Specifically, if a residential project is proposed in an urban or inner-rural area that has home-based VMT per resident that is at least 15 percent below the county VMT, the project would also be expected to generate home-based VMT per resident that is at least 15 percent below the county VMT and, therefore, would not require further VMT analysis. The planners, applicants, and others may use the County's Project-Level VMT Calculator to determine whether a proposed residential project is located within a VMT efficient area.

Figures 5 and 6 show home-based work VMT per employee by TAZ in comparison to the county VMT using SBCAG RTDM base year model data for urban and inner-rural areas of the county. Both figures present the same information with Figure 5 displaying the low VMT areas at a regional level and Figure 6 zoomed into the southern area of the county. Similar to the home-based VMT metrics discussed above, the County may use the home-based work VMT metrics illustrated in Figures 5 and 6 to screen employment projects in low VMT areas. Specifically, if an employment project is proposed in an urban or inner-rural area that has home-based work VMT that is at least 15 percent below the county VMT, the project would also be expected to generate home-based work VMT per employee that is at least 15 percent below the county VMT and, therefore, would not require further VMT analysis. Planners, applicants, and others may use the County's Project-Level VMT Calculator to determine whether a proposed employment project is located within a VMT efficient area.



- < -15% below County VMT
- 0 to -15% below County VMT
- Higher than County VMT
- SBCAG Boundary
- County Boundary
- Community Plans



Figure 3

Daily Home Based VMT Per Resident Residential Screening Opportunities

N:\Jobs\Active\3100s\3118_SB County CEQA\Graphics\GIS\MXD\Daily_VMT\Capita_VMT_CountyComparison_Unincorporated.mxd

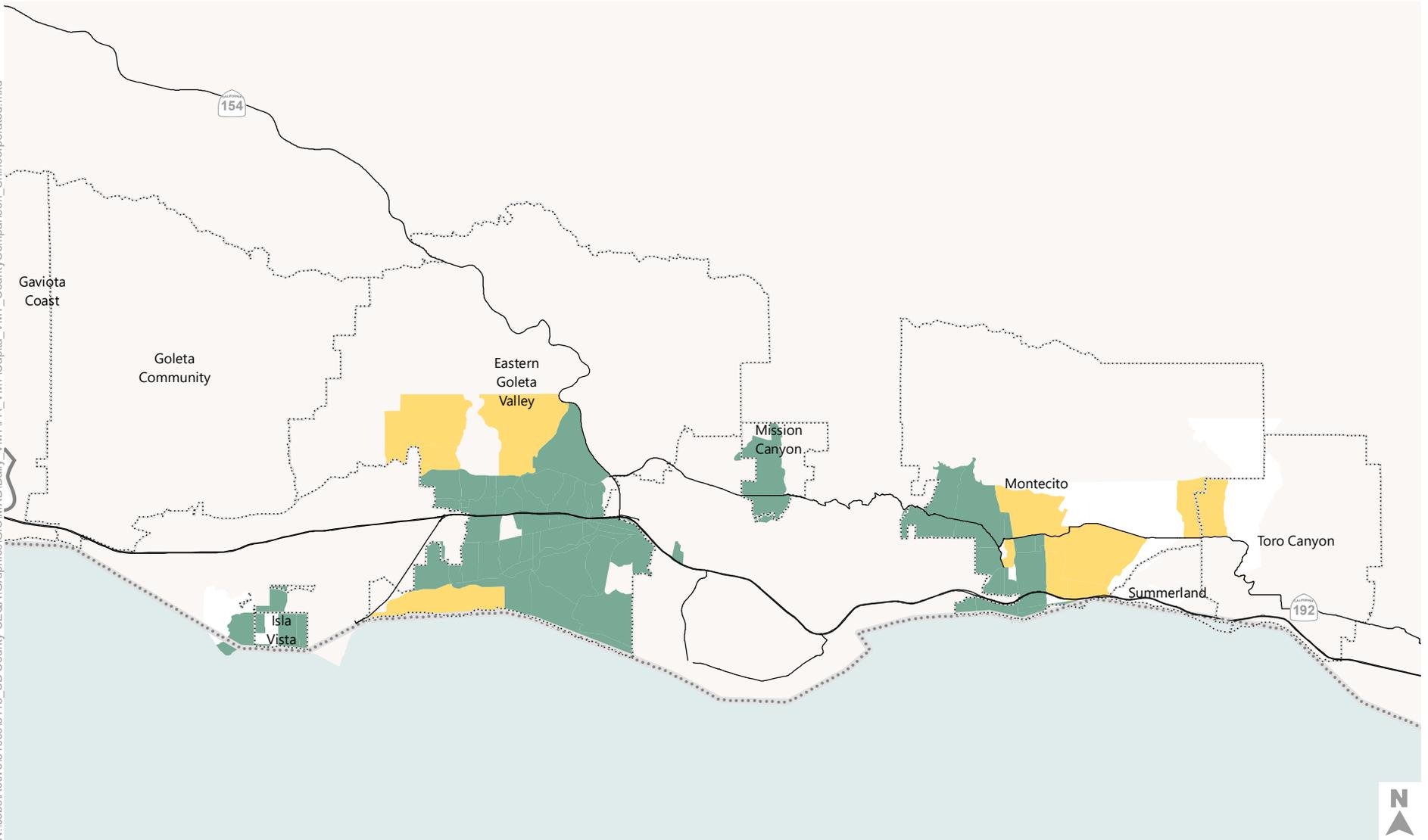


Figure 4

Daily Home Based VMT Per Resident Residential Screening Opportunities South County View

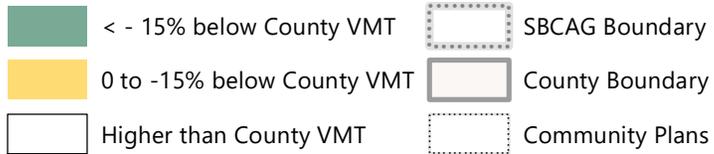
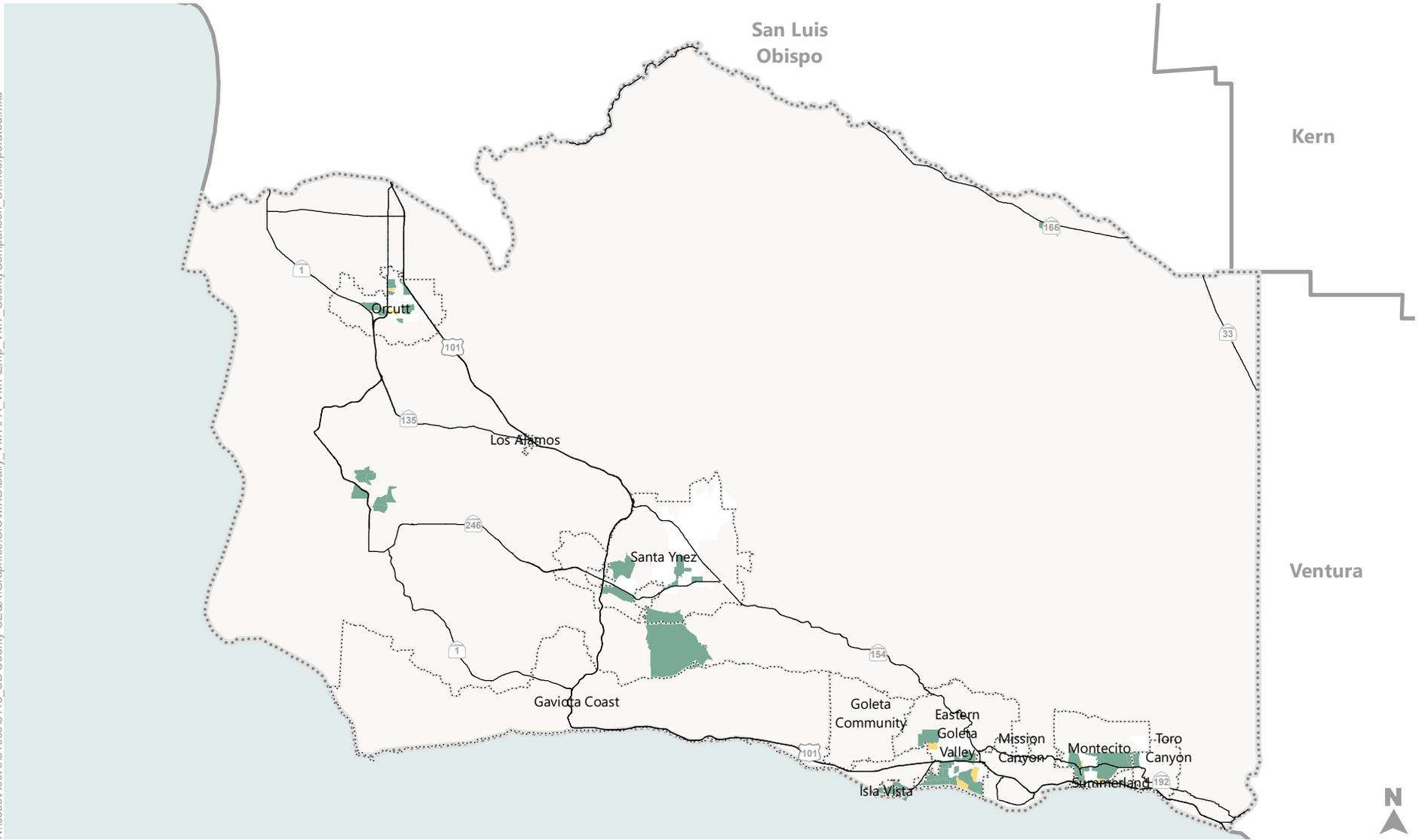
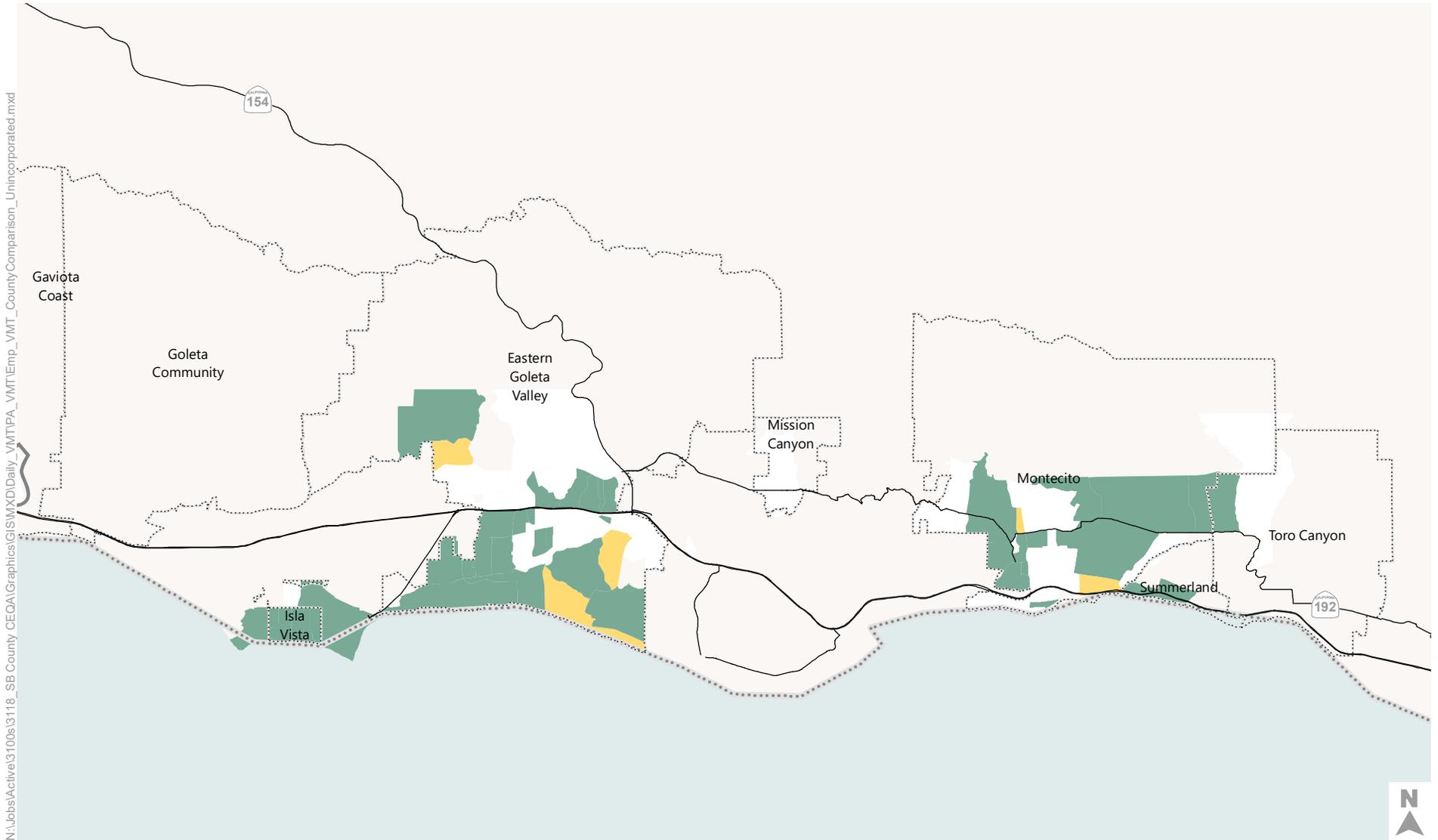


Figure 5

Daily Home Based Work VMT Per Employee Employment Screening Opportunities



N:\Jobs\Active\3100s\3118_SB County CEQA\Graphics\GIS\MXD\Daily_VMT\PA_VMT\Emp_VMT_CountyComparison_Unincorporated.mxd



Figure 6

Daily Home Based Work VMT Per Employee Employment Screening Opportunities South County View

Transit Proximity Screening

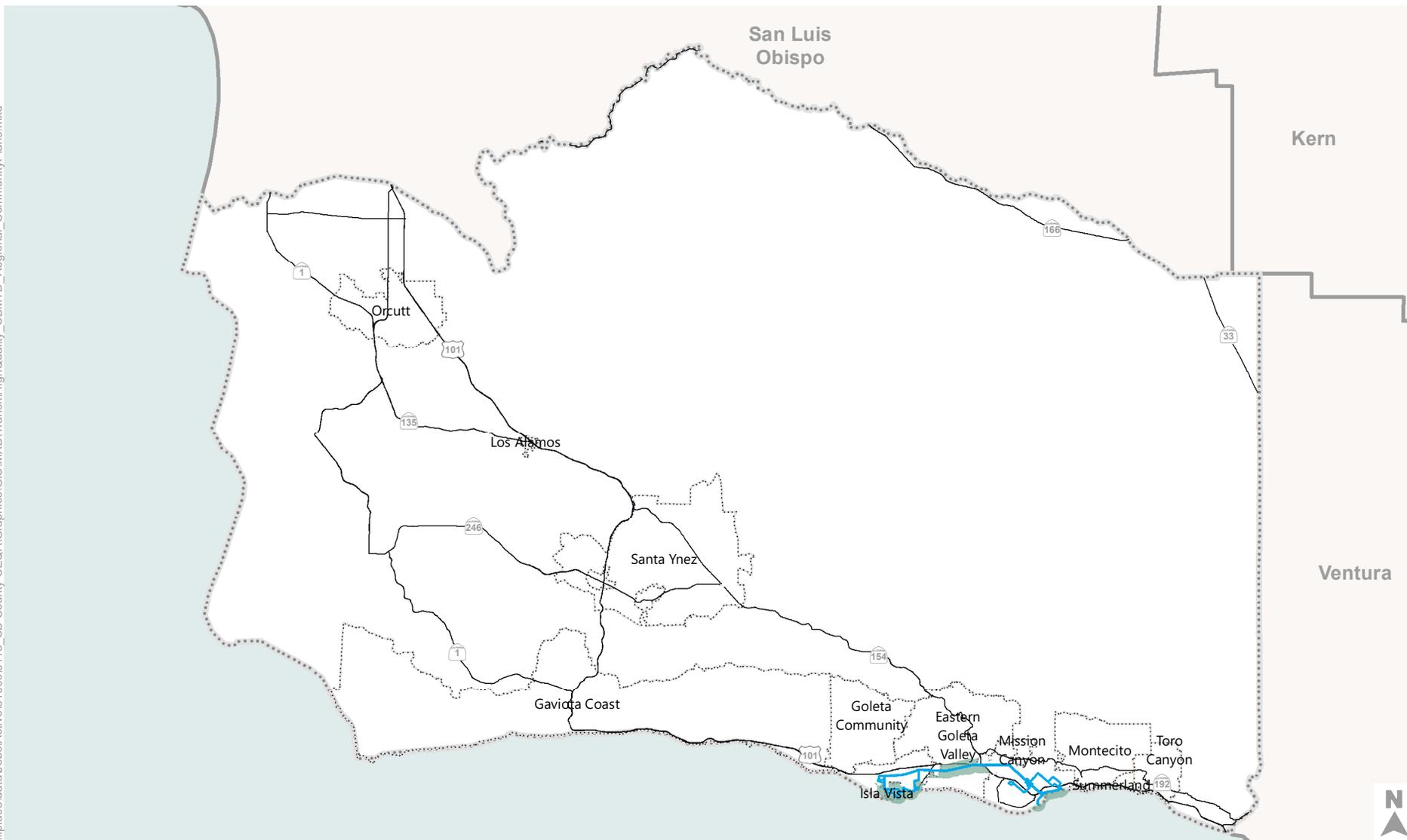
The OPR Technical Advisory (page 13) states that projects located within Transit Priority Areas (TPAs) or High-Quality Transit Corridors (HQTCs) should generally be presumed to have a less than significant impact and not require further VMT analysis. The OPR Technical Advisory defines TPAs as geographic areas within a ½-mile radius of an existing or planned major transit stop or an existing stop along a HQTC. OPR defines HQTCs corridors with fixed route bus service that operates at least every 15 minutes during peak commute hours.

The OPR Technical Advisory states that land uses that qualify for screening due to transit proximity may include residential, retail, office, or a combination of these uses. While OPR presumes that a variety of land uses located near high quality transit may have a less than significant impact, OPR also recommends that lead agencies consider the characteristics of the project, and that this screening criteria may not be appropriate if the project:

1. Has a Floor Area Ratio (FAR) of less than 0.75;
2. 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);
3. Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
4. Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Figures 7 and 8 show the TPA cluster in the county. Both figures present the same information with Figure 7 displaying the TPAs at a regional level and Figure 8 zoomed into the southern unincorporated areas that have a TPA.

\\plia03\data\Jobs\Active\3100s\3118_SB County_CEOA\Graphics\GIS\WXDI\Transit\HighQuality_SBMTD_Regional_CommunityPlans.mxd

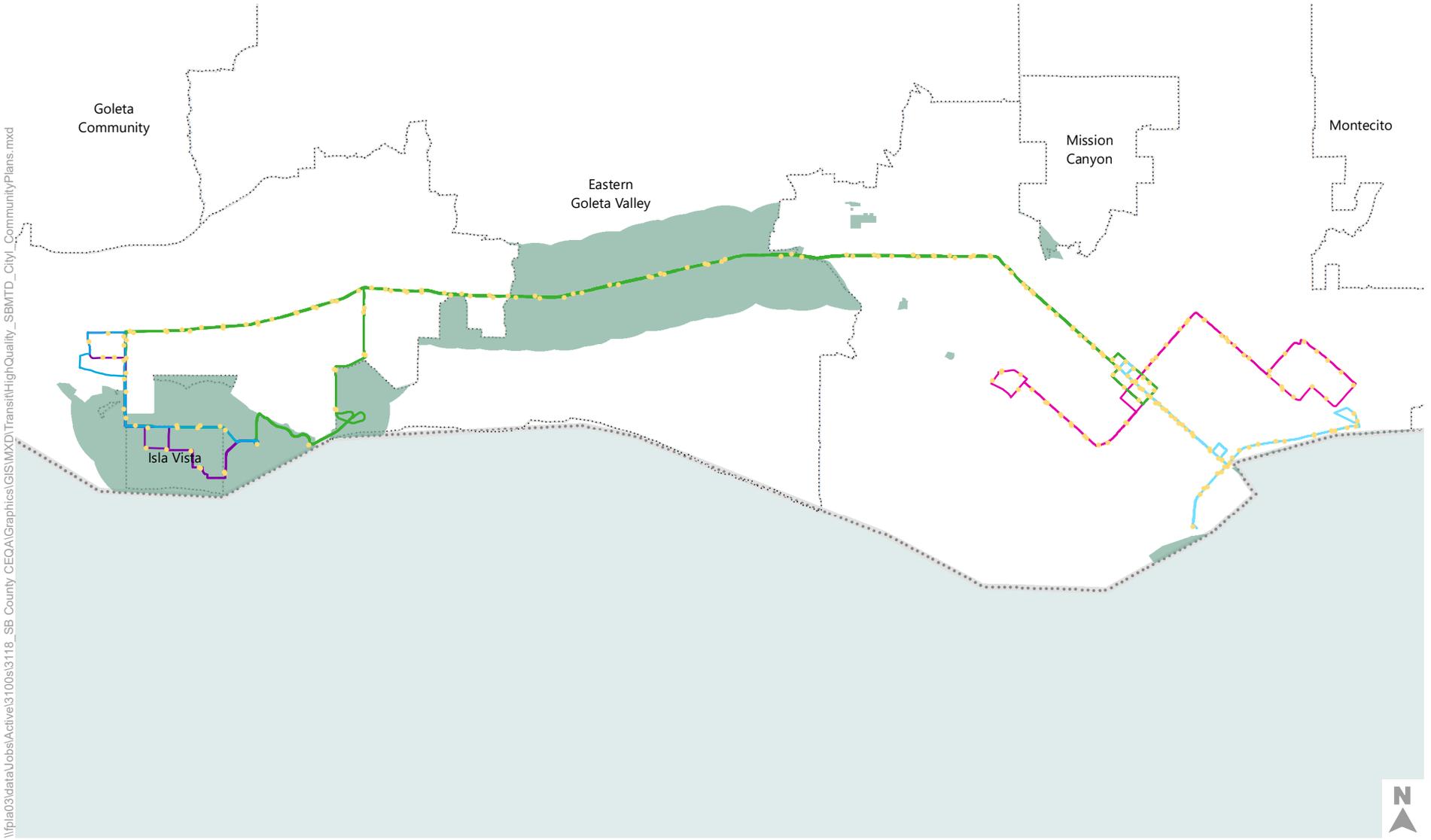


- High-Quality Transit Routes
- Transit Priority Areas
- Community Plans
- SBCAG Boundary
- County Boundary



Figure 7

TPA Screening Opportunities Santa Barbara County



\\plia03\data\Jobs\Active\3100s\3118_SB_County_CEOA\Graphics\GIS\WXDI\Transit\HighQuality_SBMTD_City_CommunityPlans.mxd

- | | | | |
|-----------------------------|-------------------------------|------------------------|-----------------|
| High-Quality Transit Routes | Isla Vista Shuttle | High Quality Stops | Community Plans |
| UCSB & Goleta | UCSB Shuttle | Transit Priority Areas | SBCAG Boundary |
| East & West Santa Barbara | Downtown & Waterfront Shuttle | County Boundary | |

Figure 8

TPA Screening Opportunities South County View



Affordable Housing Screening

The OPR Technical Advisory (page 14) states that affordable housing generates lower VMT than market-rate housing. Affordable housing units are homes that are set aside for very low income⁶ and low income⁷ households. Providing affordable housing in infill areas can shorten commutes by providing housing closer to where people work, thereby reducing the amount of travel in the area. Thus, OPR presumes that affordable housing units have a less than significant impact on VMT, absent substantial evidence to the contrary, and do not require further VMT analysis. The County may apply screening to projects containing all (100 percent) affordable housing units. If a project contains affordable housing along with other land uses, the non-affordable housing uses need to meet at least one of the other screening criteria presented in this chapter to avoid further VMT analysis.

Transportation Projects Screening Criteria

CEQA Guidelines Section 15064.3(b)(2), Transportation Projects, states, "Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact." The OPR Technical Advisory (page 23) states that transportation projects that promote active transportation, such as transit, bicycle and pedestrian facilities, are presumed to generally reduce VMT and can be screened from further analysis. In addition, projects that improve safety or traffic operations at current bottlenecks, such as installing a new traffic signal or roundabout at an intersection or widening an intersection to provide new turn lanes, are not expected to increase VMT. The OPR Technical Advisory includes a sample list of transportation projects that would not likely lead to substantial or measurable increase in VMT. Table 5, below, provides OPR's sample list of transportation projects that lead agencies may screen from further VMT analysis.

VMT Screening Summary

Table 4, below, provides a summary of VMT screening criteria for land use projects based on the OPR Technical Advisory. The table contains a separate row and columns that list each project type and the

⁶ As referenced in California Government Code Section 65584(f)(2) and defined in California Health and Safety Code Section 50079.5(a), "Very low income households' means persons and families whose incomes do not exceed the qualifying limits for very low income families as established and amended from time to time pursuant to Section 8 of the United States Housing Act of 1937. ... In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for very low income households for all geographic areas of the state at 50 percent of area median income, adjusted for family size and revised annually."

⁷ As referenced in California Government Code Section 65584(f)(2) and defined in California Health and Safety Code Section 50079.5(a), "Lower income households' means persons and families whose income does not exceed the qualifying limits for lower income families as established and amended from time to time pursuant to Section 8 of the United States Housing Act of 1937. ... In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually."

applicable screening criteria. A project that meets at least one of these screening criteria would have a less than significant impact on VMT and, therefore, would not require further VMT analysis.

Table 5 contains OPR's sample list of transportation projects that would not likely lead to a substantial or measurable increase in VMT and can be screened from further VMT analysis.

TABLE 4: VMT SCREENING CRITERIA FOR LAND USE PROJECTS

Screening Categories	Project Requirements to Meet Screening Criteria
Project Size	A project that generates 110 or fewer daily trips. ¹
Locally Serving Retail	A project that has locally serving retail uses that are 50,000 square feet or less, such as specialty retail, shopping center, grocery/food store, bank/financial facilities, fitness center, restaurant, or café. If a project also contains a non-locally serving retail use(s), that use(s) must meet other applicable screening criteria.
Project Located in a VMT Efficient Area	A residential or employment project that is located in an area that is already 15 percent below the county VMT (i.e., "VMT efficient area"). The County's Project-Level VMT Calculator determines whether a proposed residential or employment project is located within a VMT efficient area.
Transit Proximity	<p>A project that is located within a ½ mile of a major transit stop or within a ½ mile of a bus stop on a high-quality transit corridor (HQTC). A major transit stop is a rail station or a bus stop with two or more intersecting bus routes with service frequency of 15 minutes or less during peak commute periods. A HQTC is a corridor with fixed route bus service with frequency of 15 minutes or less during peak commute periods. However, these screening criteria do not apply if project-specific or location-specific information indicates the project will still generate significant levels of VMT. Therefore, in addition to the screening criteria listed above, the project should also have the following characteristics:</p> <ul style="list-style-type: none"> - Floor area ratio (FAR) of 0.75 or greater; - Consistent with the applicable SBCAG Sustainable Communities Strategy (as determined by the County); - Does not provide more parking than required by the County's Comprehensive Plan and zoning ordinances; and - Does not replace affordable housing units (units set aside for very low income and low income households) with a smaller number of moderate or high-income housing units.
Affordable Housing	A residential project that provides 100 percent affordable housing units (units set aside for very low income and low income households); if part of a larger development, only those units that meet the definition of affordable housing satisfy the screening criteria.

Note: 1. The County calculates a project's daily trips using the latest version of the *Trip Generation Manual* (Institute of Transportation Engineers) or locally valid trip rates approved by the County Public Works Department.

TABLE 5: EXAMPLE TRANSPORTATION PROJECTS SCREENED FROM VMT ANALYSIS CRITERIA¹

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity
- Roadside safety devices or hardware installation such as median barriers and guardrails
- Roadway shoulder enhancements to provide "breakdown space," dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Conversion of existing general purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel
- Addition of a new lane that is permanently restricted to use only by transit vehicles
- Reduction in number of through lanes
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow
- Installation of roundabouts or traffic circles
- Installation or reconfiguration of traffic calming devices
- Adoption of or increase in tolls
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase
- Initiation of new transit service
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Removal or relocation of off-street or on-street parking spaces
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)

- Addition of traffic wayfinding signage
- Rehabilitation and maintenance projects that do not add motor vehicle capacity
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel
- Installation of publicly available alternative fuel/charging infrastructure
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor

Note: 1. This list is provided in the OPR Technical Advisory (OPR, December 2018, pages 20 and 21) for projects that “would not likely lead to a substantial measurable increase in vehicle travel, and therefore generally should not require an induced travel analysis.”

VMT Analysis Methodology

The County would require a VMT analysis for projects that do not meet any of the screening criteria above. The VMT analysis would rely on the best available data to inform trip generation and trip length estimates for the project uses. For land use plans (e.g., specific plans or community plans) and projects consisting of typical land use types, such as residential, employment, and retail land uses, the VMT analysis can be conducted using the most recent version of the SBCAG RTDM. For other project types, such as a performing arts venue, the VMT analysis should be customized to determine the unique trip generation and trip length characteristics of the proposed uses.

As part of the SB 743 implementation process, Fehr and Peers is developing a Project-Level VMT Calculator for the County. The calculator will include a database of VMT information for every county TAZ using data from the SBCAG RTDM. The VMT data will be reported as (1) total VMT, (2) Total VMT per service population, (3) home-based VMT per resident, and (4) home-based work VMT per employee. The calculator will also incorporate the recommended screening criteria. A transportation planner/engineer will need to run the SBCAG RTDM for large projects (bigger than one TAZ) or projects with unique land uses to generate a more accurate VMT estimate.

CEQA Guidelines require that environmental documents consider the potential for project impacts under existing and cumulative conditions. The OPR Technical Advisory provides the following specific guidance related to a VMT impact analysis:

- **Existing Conditions:** Project-generated VMT should be estimated for the proposed land uses under existing conditions. VMT can be estimated using the SBCAG RTDM (using the County’s Project-Level VMT Calculator described above or conducting a model run for larger projects) and should be reported as home-based VMT per resident (residential projects), home-based work VMT per employee (employment projects), total VMT (retail projects), or total VMT per service population (other land use projects).

- **Cumulative Impacts:** CEQA requires lead agencies to consider a project’s individual and cumulative impacts. Specifically, CEQA Guidelines Section 15064(h)(1) states, “the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable.”⁸ The County typically uses one of two methods to determine whether a project’s VMT impact is cumulatively considerable. As explained below, one method is for projects subject to an efficiency-based threshold of significance. The other method is for projects subject to an absolute threshold of significance and land use plans.

Projects subject to Efficiency-Based Thresholds. The County generally uses efficiency-based thresholds of significance (i.e., per resident, per employee, and per service population) to analyze most land use project’s VMT impacts. Consistent with the OPR Technical Advisory (page 6), a land use project that falls below the applicable efficiency-based threshold of significance would not have a VMT impact that is cumulatively considerable. Projects that are under the County’s efficiency-based impact thresholds are already shown to align with long-term environmental goals to reduce VMT. As a result, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa. The Project-Level VMT Calculator provides the information necessary for this analysis.

Projects subject to Absolute Thresholds and Land Use Plans. Transportation projects and some land use projects are subject to an absolute threshold of significance (i.e., total roadway VMT or total VMT). The analysis of cumulative impacts for a project subject to an absolute threshold of significance should consider the combined impacts of the project and other closely related past, present, and reasonably foreseeable future projects. The project’s or plan’s contribution to a VMT impact would be cumulatively considerable if the study area’s total roadway VMT or total VMT, as appropriate, would be higher in the future with the project or plan in place. Land use plans should undergo similar analysis even though their project-level impacts are subject to an efficiency-based threshold of significance (i.e., VMT per service population). A land use plan could change travel patterns in the region. However, an efficiency-based threshold may not fully capture such changes. Therefore, the analysis of a land use plan’s cumulative impacts should consider the net increase in total VMT, which would provide a more detailed analysis of all travel in the plan area and region.

A transportation planner/engineer would use the SBCAG RTDM or an equivalent transportation model to generate the data necessary for this analysis. Specifically, the transportation planner/engineer would modify the future year SBCAG RTDM to reflect the project or plan and the study area’s total roadway VMT or total VMT, as appropriate, would be compared to future

⁸ CEQA Guidelines Section 15064(h)(1) states (in pertinent part): “‘Cumulatively considerable’ means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”

conditions without the project or plan in place. The transportation planner/engineer can also complete a redistribution of land use so that the future SBCAG RTDM contains the same land use control totals with the project or plan.

The County identified six hypothetical projects as “pilot projects” to outline the anticipated VMT analysis process. **Attachment A** summarizes the results of the pilot project testing.

Chapter 5 – VMT Thresholds of Significance

CEQA Guidelines Section 15064.7, *Thresholds of Significance*, encourages lead agencies to develop and publish thresholds of significance. Pursuant to Section 15064.7(b), the County may adopt a threshold of significance for VMT by ordinance, resolution, rule, or regulation through a public review process supported by substantial evidence. This chapter recommends VMT thresholds for the unincorporated areas of the county.

VMT Threshold Options

The County may use thresholds of significance to determine the significance of transportation impacts for land use and transportation projects that do not meet any of the screening criteria in Chapter 4. Lead agencies have multiple options for setting thresholds. Under any option, the lead agency must develop its own substantial evidence to support its preferred threshold or consider multiple perspectives and rely on substantial evidence provided by others. These perspectives include those from the State, community, and stakeholders from the development community and environmental protection groups. A threshold that is too stringent could lead to a significant and unavoidable VMT impact, which would increase the complexity of environmental review for development in the county. Conversely, a threshold that is too lenient could lead to missed opportunities to reasonably reduce VMT and related environmental impacts in the county. If an interested party challenges a project impact (or lack thereof), the lead agency must demonstrate that substantial evidence exists to support its decision.

Staff considered the following four options for establishing VMT thresholds:

- OPR Technical Advisory thresholds;
- Thresholds consistent with other lead agency air quality, GHG reduction, and energy conservation goals;
- Thresholds consistent with the SBCAG RTP/SCS future year VMT projections by jurisdiction; and
- Thresholds based on baseline VMT performance.

VMT Thresholds for Land Use Projects and Plans

After reviewing the threshold options, staff recommends relying on the thresholds contained in the OPR Technical Advisory for land use projects and plans. OPR recommended an overall reduction in VMT of 15 percent compared to existing levels to be a reasonable threshold for residential and employment projects. OPR concluded that a 15 percent reduction is necessary to help the State achieve its climate goals, including those set forth in Assembly Bill 32 (2006), Senate Bill 375 (2008), and Senate Bill 32 (2016). The State can achieve some progress toward meeting its climate goals through increased vehicle efficiency or decreased fuel carbon content. However, the California Air Resource Board (CARB) *2018 Progress Report, California's Sustainable Communities Climate Protection Act* (CARB, November 2018) clarifies that California cannot meet its climate goals without curbing growth in single-occupancy vehicle activity,⁹ and additionally explains that interactions between land use projects, and also land use and transportation projects together, affect VMT. In the *2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (CARB, January 2019), CARB used evidence based modeling to determine that per-capita light-duty vehicle travel would need to be reduced by approximately 16.8 percent compared to existing levels, and overall per-capita vehicle travel would need to be reduced by approximately 14.3 percent compared to existing levels to meet State climate goals.¹⁰

To reflect the County's goals of reducing VMT and GHG emissions, staff recommends applying the guidance from the OPR Technical Advisory. Specifically, staff recommends a threshold of 15 percent below baseline county VMT for most land use projects and all land use plans. For example, a land use project would need to generate VMT (per resident or per employee) that is at least 15 percent below the county VMT to result in a less than significant transportation impact. County VMT reflects the travel characteristics of the unincorporated areas of the county. These travel characteristics factor in land use patterns, context of the built environment, transportation network, and available travel options.

Regional retail projects typically result in a re-routing of travel in the county from other existing retail destinations and, therefore, warrant a separate threshold of significance. Depending on the proposed location and types of uses, a regional retail project may result in an overall increase or decrease in VMT in the county. The OPR Technical Advisory (page 16) and staff recommend analyzing the VMT for regional retail projects by assessing the net change in total VMT. Specifically, the threshold considers whether a regional retail project would the change in total VMT in comparison to the existing (baseline) VMT. A regional retail project that increases total VMT in the county would have a significant environmental impact.

Community plans and other land use plans provide an opportunity to reduce VMT. For example, an update to the land use element of a comprehensive plan could define a mixture of land uses and foster a

⁹ CARB 2018, 35. https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf

¹⁰ CARB 2017, 10-11. https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf

circulation network that minimizes longer distance trips and promotes travel through active modes of transportation.

VMT Thresholds for Transportation Projects

The OPR Technical Advisory states that transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant transportation impact. In a similar vein, transportation projects that promote travel by non-automobile modes would not result in an environmental impact.

For roadway widening and other transportation projects, transportation planners/engineers determine the change in VMT by comparing the pre-project VMT (i.e., existing, or baseline) to post-project VMT (i.e., future) within a study area. The study area should reflect the project’s area of influence. Large projects affecting regional travel may define the study area as the entire county, while small projects may only consider the local community. A project that increases total VMT in the study area would have a significant environmental impact.

VMT Threshold Summary

Table 6, below, summarizes the VMT thresholds of significance for land use projects, land use plans, and transportation projects in Santa Barbara County.

TABLE 6: PROJECT VMT THRESHOLDS OF SIGNIFICANCE

Project Type	Threshold for Determination of Significant VMT Impact
Residential	Project VMT exceeds a level of 15 percent below existing county VMT for home-based VMT per resident.
Employment	Project VMT exceeds a level of 15 percent below existing county VMT for home-based work VMT per employee.
Regional Retail	Project VMT results in a net increase in total VMT.
Mixed-Use Projects	Evaluate each project component independently using the applicable thresholds of significance above for each component (e.g., for a mixed-use project with residential and office uses, apply the residential and employment thresholds of significance for each component separately).
Other land use types	For project types not listed above (e.g., school, sports or entertainment facility, park), the County will apply an absolute VMT threshold (e.g., total VMT or total roadway VMT) or efficiency-based VMT threshold (e.g., home-based VMT per resident, home-based work VMT per employee, or total VMT per service population). The applicable threshold will depend on the project’s characteristics, including whether the project is locally or regionally serving. For projects that generally produce job-related travel (i.e., employment), the analysis can compare the project’s VMT (i.e., home-based work VMT per

	employee) to existing county VMT. For projects that serve the region, the analysis can compare the project's total VMT to existing VMT, or compare the project's net increase in total VMT to the study area VMT.
Transportation Projects	Project results in an increase in total roadway VMT in comparison to existing VMT for the study area.
Land Use Plans	The plan's generated total VMT per service population exceeds a level of 15 percent below existing total VMT per service population for the geographic area.

Chapter 6 – VMT Mitigation Options

This chapter describes VMT mitigation strategies that may apply to projects in Santa Barbara County. The traditional options for mitigating traffic impacts, such as widening an intersection or roadway, are no longer applicable. This chapter summarizes potential strategies to reduce VMT that are suited to the built environment in the county and identifies potential new mitigation program concepts that the County may consider as part of future planning efforts.

Mitigation Overview

The OPR Technical Advisory (page 26) states that environmental documents must identify feasible mitigation measures for projects that result in a significant environmental impact. With the new metric of VMT, the mitigation measures should reduce the amount of vehicle travel generated by a project so that the impact is substantially reduced or avoided altogether.

The OPR Technical Advisory (page 27) provides several potential mitigation measures that can result in a reduction in vehicle travel. These types of measures are typically described as transportation demand management (TDM) strategies and can be applied at the project scale. The OPR Technical Advisory also states that mitigation fee programs can be effective at reducing VMT regionally. Fee programs can serve as CEQA mitigation if there is evidence that the fee is guaranteed to be paid and that the projects and programs funded through the fee program will be implemented.

VMT Mitigation through TDM

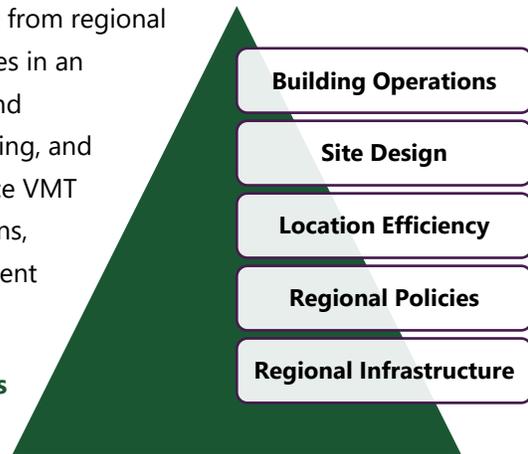
The predominantly suburban and rural land use context of the county presents a challenge to the effectiveness of many common TDM strategies that reduce vehicle travel due to lower land use densities and limited travel options. Despite this challenge, identifying mitigation measures that reduce the number of single-occupant vehicle trips and miles traveled generated by a project is still possible. The OPR Technical Advisory (page 27) states that agencies will continue to find new ways to reduce VMT and innovate in this area.

The types of mitigation that affect VMT are those that reduce the number of single-occupant vehicles traveling to or from a particular site. This can be accomplished by changing the proposed land uses or by implementing TDM strategies. TDM strategies have been determined to be among the most effective VMT mitigators. TDM strategies reduce VMT through project site modifications, programming, and operational changes. TDM strategies in *Quantifying Greenhouse Gas Mitigation Measures* (CAPCOA¹¹, 2010) and other research papers published since its release, were reviewed for applicability in the County.

The scale of a TDM strategy is an important consideration for mitigation effectiveness. The biggest effects of TDM strategies on VMT (and resultant emissions) derive from regional policies related to land use location efficiency (e.g. infill sites in an already developed area versus greenfield development), and infrastructure investments that support taking transit, walking, and bicycling. While there are many measures that can influence VMT and emissions related to site design and building operations, those measures have smaller effects that are often dependent on the ultimate building tenants.

Transportation-Related GHG Reduction Measures

TDM Strategies



Specific TDM mitigation strategies aimed at reducing VMT need to be tailored to the project characteristics, and their effectiveness needs to be analyzed and documented as part of the environmental review process to determine if impacts could be mitigated to an insignificant level, or if they would remain significant and unavoidable. Given that research on the effectiveness of TDM strategies is continuing to evolve, feasible mitigation measures should be considered based on the best data available at the time a project is being considered by the County.

The research provided by CAPCOA estimates the effectiveness of VMT reductions by land use type (e.g., residential or office) and place type (e.g., urban or suburban). Several strategies effective in a suburban and rural setting such as the County are described below. **Attachment B** contains a detailed summary of the applicable VMT mitigation options.

- **Increase diversity of land uses** – This strategy focuses on inclusion of mixed uses (retail and/or office mixed with residences) within projects or in the surrounding area in order to minimize vehicle travel in terms of both the number of trips and the length of those trips. Several County community plans identify this strategy in their land use and circulation policies.

¹¹ California Air Pollution Control Officers Association (CAPCOA), *Quantifying Greenhouse Gas Mitigation Measures*, 2010. https://ww3.arb.ca.gov/cc/capandtrade/auctionproceeds/capcoa_quantifying_ghg_measures.pdf.

- **Provide pedestrian network improvements** – This strategy focuses on creating a pedestrian network within the project and connecting to nearby destinations. Implementation could be required by the project or also occur through an update to the County’s Transportation Improvement Program fee program that incorporates active transportation improvements.
- **Provide traffic calming measures and low-stress bicycle network improvements** – This strategy combines the CAPCOA research focused on traffic calming with new research on providing a low-stress bicycle network. Traffic calming creates networks with low vehicle speeds and volumes that are more conducive to walking and bicycling. Building a low-stress bicycle network produces a similar outcome. Implementation could be required by the project or also occur through an update to the County’s Transportation Improvement Program fee program that incorporates active transportation improvements.
- **Implement car-sharing and ride-sharing programs** – This strategy reduces the need to own a vehicle or reduces the number of vehicles owned by a household by making it convenient to access a shared vehicle for those trips where vehicle use is essential. Note that implementation of this strategy would require regional or local agency implementation and coordination and would not likely be applicable for individual development projects. The County could encourage “school-pools” (ridesharing program for school children) and carpooling/vanpooling services by project site/building tenants.
- **Encourage telecommuting and alternative work schedules** – This strategy relies on effective internet access and speeds to individual project sites/buildings to provide the opportunity for telecommuting. The effectiveness of the strategy depends on the ultimate building tenants and the need for their workers to be physically present during work hours.
- **Increase transit service frequency and speed** – This strategy focuses on improving transit service convenience and travel time competitiveness with driving. Given land use density in the County, this strategy may be limited to traditional commuter transit where trips can be pooled at the start and end locations, such as the Clean Air Express service, or require new forms of demand-responsive transit service. The demand-responsive service could be provided as subsidized trips by contracting to private transportation network companies (TNCs), such as ride sharing companies. Alternatively, a public transit operator could provide the subsidized service but would need to improve on traditional cost effectiveness by relying on TNC ride-hailing technology, using smaller vehicles sized to demand, and flexible driver employment terms where drivers are paid by trip versus by hour. Implementation of this strategy would require regional or local agency implementation, substantial changes to current transit practices, and is unlikely to be applicable for individual development projects.
- **Parking Management** - This strategy focuses on the management of parking to influence vehicle travel. Free and ubiquitous parking supply tends to increase vehicle use, whereas reducing parking

supply and pricing spaces can help reduce vehicle travel. A reduction in parking supply can also be used to incentivize infill development where space is unavailable to develop code-required parking, or higher density development by reducing the cost of building parking spaces. This strategy may be less effective in the suburban and rural setting of Santa Barbara County but will depend on the specific project site and the surrounding parking supply.

Mitigation Program Concepts

In addition to the conventional TDM options described above, other jurisdictions are exploring the following two new concepts that may be available in the future.

- **VMT Mitigation Exchange** – An exchange program is a concept where VMT generators can select from a pre-approved list of mitigation projects that may be located within the same jurisdiction or possibly from a larger area. The intent is to match the project’s needed VMT reduction with a specific mitigation project of matching size and to provide evidence that the VMT reduction will reasonably occur.
- **VMT Mitigation Bank** – A mitigation bank is intended to serve as an entity or organization that pools fees from development projects across multiple jurisdictions to spend on larger scale mitigation projects. This concept differs from the more conventional impact fee program approach described above in that the fees are directed to a few larger projects that have the potential for a more significant reduction in VMT and the program is regional in scale.

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

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

Yet while methods for reducing VMT impacts—such as mileage pricing mechanisms, direct investments in new public transit infrastructure, transit access subsidies, and infill development incentives—are well understood, they may be difficult in some cases to implement as mitigation projects directly linked or near to individual developments. As a result, broader and more flexible approaches to mitigation may be necessary. In response, state and local policy makers are considering the creation of mitigation “banks” or “exchanges.” In a mitigation bank, developers would commit funds instead of undertaking specific on-site mitigation projects, and then a local or regional authority could aggregate these funds and deploy them to top-priority mitigation projects throughout the jurisdiction. Similarly, in a mitigation exchange, developers would be permitted to

select from a list of pre-approved mitigation projects throughout the jurisdiction (or propose their own), without needing to mitigate their transportation impacts on-site. Both models can be applied at a city, county, regional, and potentially state scale, depending on local development patterns, transportation needs and opportunities, and political will.

This is important for the county because mitigating VMT impacts on a project-by-project basis is challenging, especially in suburban and rural land use contexts where travel choices are limited.

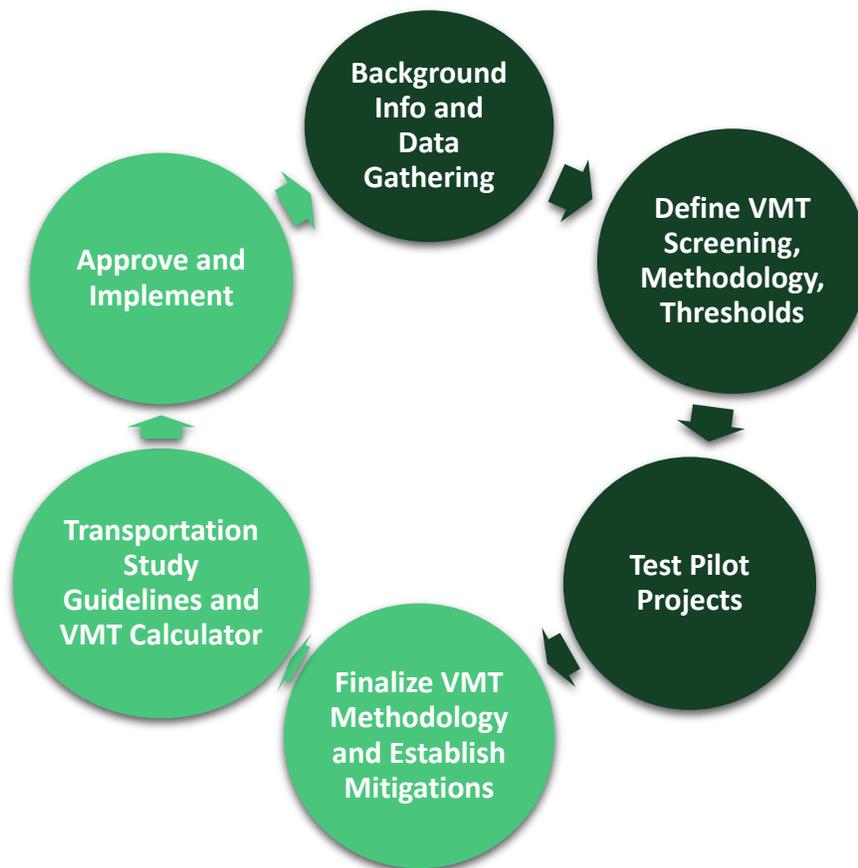
Another important prerequisite for either of these concepts is development of an entity responsible for establishing, operating, and maintaining the program. This is a potential role for a regional entity (e.g., SBCAG) or sub-regional entity, especially for programs that would extend mitigation projects beyond individual jurisdictional boundaries. A key part of operating an effective VMT mitigation program is that the entity will need the capability to provide verification of the VMT reduction and to adjust the program over time to reach targeted reductions. Establishing a local VMT mitigation program could help minimize potential concerns about mitigation not occurring near the project site or in the same community.

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

Attachment A –
Pilot Project Testing

VMT Analysis for Selected Pilot Projects

As part of the process for determining the county VMT, screening options, analysis methodology, and VMT impact thresholds, sample projects were reviewed to determine the potential impacts under the new CEQA guidance on VMT. The County used the results from the pilot project testing to inform final decisions on implementing VMT impact analysis. The chart below provides an overview of the implementation process.



Pilot Projects

Six hypothetical projects were identified as “pilot projects” to outline the anticipated VMT analysis process. The following pilot projects represent a mix of development types and locations within the County:

1. Old Town Orcutt Office Development – 125 ksf office
2. Old Town Orcutt Residential Development – 68 dwelling units
3. Old Town Orcutt Mixed Use Development – 45 dwelling units, 68 ksf retail
4. Eastern Goleta Valley (EGV) Office Development – 125 ksf office

5. EGV Residential Development – 68 dwelling units
6. EGV Mixed Use Development – 45 dwelling units, 68 ksf retail

The following section provides an overview of the analysis process.

Project Size Screening

The OPR recommendation screens projects from further VMT analysis if they generate fewer than 110 daily trips and have less than 50 ksf of retail uses. Due to the size of the pilot projects, none would be screened from further VMT analysis based on project size or locally serving retail uses.

Low VMT Screening

The OPR recommendation screens projects from further VMT analysis if they are located in a low VMT generating TAZ, defined as VMT that is at least 15 percent lower than the county VMT.

The EGV residential development (pilot 5) and the residential component of the EGV mixed use development (pilot 6) would be screened out of VMT analysis, due to the project TAZ being more than 15 percent lower the regional average for home-based VMT per resident.

Transit Priority Area (TPA) Screening

The OPR recommendation screens projects from further VMT analysis if they are located in a TPA which considers proximity to high quality transit bus stops. The TPA boundary (shown in Figures 7 and 8) was used to define the screening area. The pilot projects meeting the TPA screening criteria include all three EGV projects (pilots 4, 5, and 6).

VMT Analysis

For the purpose of pilot project testing, Fehr & Peers based the VMT analysis on the VMT metrics for the project TAZ using outputs from the SBCAG RTDM. This requires that the project TAZ already include similar land use types that can be used to estimate the VMT of the new land uses being proposed. For each of the pilot projects, the TAZ reflecting the development area had similar uses contained in the SBCAG RTDM. Therefore, the baseline VMT metrics were applied to the pilot project. For some projects, a model run may be required to recalculate the VMT metrics for the TAZ with the project in place.

Because none of the projects in Old Town Orcutt were screened out, all three projects would need to conduct a VMT analysis. Although the EGV projects could be screened from further VMT analysis due to their location in a low VMT or TPA area, Fehr & Peers still analyzed the three pilot projects. The summary below contains VMT metrics for each pilot project.

Potential Project Impacts

The VMT performance metrics for each project were compared to the county VMT to determine if the project would potentially result in a VMT impact. The county VMT comparison was conducted as follows:

1. For residential uses, is the project VMT (home-based VMT per resident) at least 15 percent below the county VMT?
2. For employment uses, is the project VMT (home-based work VMT per employee) at least 15 percent below the county VMT?
3. For retail uses, will the project result in a net increase in VMT?

When comparing the home-based VMT per resident to the county VMT, all four residential projects are below the county VMT. For the residential projects in EGV, the home-based VMT per resident for the TAZs are more than 15 percent below the county VMT and, therefore, would not have a potential VMT impact. However, for the residential projects in Orcutt, the home-based VMT per resident for the TAZs are not more than 15 percent below the county VMT and, therefore, could have a potential VMT impact.

When comparing the home-based work VMT per employee to the county VMT, the Orcutt employee VMT is more than 15 percent below the county VMT and, therefore, would not have a potential VMT impact. For the EGV office project, the VMT is less than the county VMT but is not more than 15 percent below the county VMT and, therefore, could have a potential VMT impact.

Due to the retail component of the Orcutt mixed use development not being screened out, Fehr & Peers conducted a full model run. Fehr & Peers also conducted a full model run for the retail component of the EGV mixed-use development.

For the retail component of Pilot 3, adding in 68 ksf of new retail results in a total increase of VMT for the SBCAG region of 1,202 miles (from 17,894,655 to 17,895,857), or a 0.01 percent increase. VMT per service population goes from 29.1 without the retail to 29.0 with the retail, for a 0.02 percent decrease. Based on the net change in VMT, this project could have a significant impact.

For the retail component of Pilot 6, adding in 68 ksf of new retail results in a total increase of VMT for the SBCAG region of 1,341 miles (from 17,894,655 to 17,895,995), or a 0.01 percent increase. VMT per service population goes from 29.1 without the retail to 29.0 with the retail, for a 0.01 percent decrease. However, Pilot 6 is located within a TPA and could be screened from needing a VMT analysis if OPR guidance is adopted by the County.

Pilot Project Summary

		Is project screened out based on...			VMT Analysis			
Pilot Name	Project Components	Project Size?	Location in Low VMT Area?	Location Within a TPA?	VMT Metric	Project VMT Estimate ¹	County VMT Threshold	Is there a Potential VMT Impact?
Pilot 1: Old Town Orcutt Office Development	125 ksf office	No	No	No	Home-Based Work VMT per Employee	12.4	13.5	No
Pilot 2: Old Town Orcutt Residential Development	68 dwelling units	No	No	No	Home-Based VMT per Resident	14.9	12.8	Yes
Pilot 3: Old Town Orcutt Mixed Use Development	45 dwelling units	No	No	No	Home-Based VMT per Resident	14.9	12.8	Yes
	68 ksf retail	No	n/a	No	Net increase in VMT	-- ²	-- ²	Yes
Pilot 4: Eastern Goleta Valley Office Development	125 ksf office	No	No	Yes	Home-Based Work VMT per Employee	14.8	13.5	Yes
Pilot 5: Eastern Goleta Valley Residential Development	68 dwelling units	No	Yes	Yes	Home-Based VMT per Resident	9.6	12.8	No
Pilot 6: Eastern Goleta Valley Mixed Use Development	45 dwelling units	No	Yes	Yes	Home-Based VMT per Resident	9.6	12.8	No
	68 ksf retail	No	n/a	Yes	Retail component does not need model to analyze VMT due to being screened out for being in a TPA. No impact with TPA screening criteria applied.			

Notes:

¹ Project VMT estimated from SBCAG RTDM data for TAZ that represents project site with similar land uses.

² Pilot 3 retail uses result in a net increase in VMT for the SBCAG region of 1,202 (VMT increases from 17,894,655 to 17,895,857), or a 0.01 percent increase.

Attachment B – VMT Mitigation Strategies

Transportation Demand Management (TDM) Strategies for VMT Mitigation

CAPCOA VMT Reduction Strategy						Land Use Applicability				Place Type Applicability			Implementation Body			
Number	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Updated VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Urban	Suburban	Rural	Property Manager/HOA	Tenant	Developer	County or Other Agency
3.1.1	Increase Density	Density is typically measured in terms of jobs, persons, or dwelling units per unit area. Increasing density can decrease the distance people travel and the transportation mode they use to get to a destination (e.g. people can replace a vehicle trip with a walking, biking, or transit trip). Increasing residential density is associated with lower VMT per capita. Increased residential density in areas with high jobs access may have a greater VMT change than increases in regions with lower jobs access. The range of VMT reductions assumes that residential density is increased between 10% and 50% over existing conditions.	Land Use/ Location	0.8% - 30%	0.4% - 10.75%	X	X	X	X	X	X				X	X
3.1.3	Increase Diversity of Urban/ Suburban Developments	<p>Increasing the diversity of urban and suburban developments includes placing different land uses near each other and in the same building (i.e. mixed-use). Increasing diversity of land use minimizes the number and length of vehicle trips as people can reach multiple destinations in one trip or walk/bike for shorter trips.</p> <p>In the urban context, a single building should combine multiple uses and should encourage non-auto modes of transport. Increased diversity of urban developments can lead to between a 0% to a 12% decrease in VMT.</p> <p>In the suburban context, a mix of different uses, like residential, retail, office, or open space, should exist on site or within ¼ of a mile of the site. Increased diversity of suburban developments can lead to between a 0.3% to a 4% decrease in VMT.</p>	Land Use/ Location	9%-30%	Urban: 0% - 12% Suburban: 0.3% - 4%	X	X	X	X	X	X				X	X
3.1.5	Increase Transit Accessibility	<p>Increasing transit accessibility encourages transit use to replace vehicle trips. This measure is primarily relevant for urban and suburban contexts but can be applicable for rural contexts if a development is adjacent to a commuter rail station with convenient rail service to a major employment center. Increasing transit accessibility can take two forms:</p> <p>1) Locate near transit: Locate developments within a 5-10 minute walk (approximately 0.25 mile) from a high-frequency transit stop.</p> <p>2) Create Transit-Oriented Development: Transit accessibility is enhanced by nearby mixed-use developments, streets with traffic-calming design, and parking management. To qualify for this reduction, the project must include a mix of land uses, manage access to parking, and be designed to encourage walking and cycling. Most of the development's residents and workers must be within a 5-10 minute walk (or roughly 0.25 mile from stop to edge of development) of fast, frequent, and reliable transit service connecting to a high percentage of regional destinations.</p>	Land Use/ Location	0.5% - 24.6%	<p>1) Locate near transit: 0% - 5.8%</p> <p>2) Create TOD: 0% - 7.3%</p>	X	X	X	X	X	X				X	X

CAPCOA VMT Reduction Strategy						Land Use Applicability				Place Type Applicability			Implementation Body			
Number	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Updated VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Urban	Suburban	Rural	Property Manager/HOA	Tenant	Developer	County or Other Agency
3.1.9	Improve Design of Development	Improving development design to improve walkability and connectivity will encourage people to walk to and within a development. Walkability and connectivity can be assessed by measuring average block size, number of intersections per square mile, sidewalk coverage, building setbacks, street widths, pedestrian crossings, and presence of street trees. This applies only to large developments with significant internal street structure.	Land Use/ Location	3% - 21.3%	No Change	X	X	X	X	X	X				X	X
3.2.1	Pedestrian Network Improvements	Pedestrian network improvements around and within the project site encourage people to walk to and within the project site. VMT reductions are due to the provision of complete pedestrian networks and only apply if located in an area that has a less robust sidewalk network. Generally, the developer can make the project site more accessible, connected, and welcoming with pedestrian network improvements, such as removing physical barriers, adding pedestrian crossing infrastructure, creating network links, and widening sidewalks.	Neighborhood/ Site Enhancement	0% - 2%	0.5% - 5.7%	X	X		X		X	X			X	X
3.2.2	Provide Comprehensive Bicycle Improvements	<p>This strategy only applies to bicycle facilities that provide a dedicated lane for bicyclists or a completely separated right-of-way for bicycles and pedestrians. VMT reductions are primarily due to expansion of bike networks in urban areas.</p> <p>For individual projects, the citywide (or similar scale) bicycle network is enhanced such that a building entrance or bicycle parking is within 200 yards walking or bicycling distance from a bicycle network that connects to at least one of the following:</p> <ul style="list-style-type: none"> - at least 10 diverse uses; - a school or employment center, if the project total floor area is 50% or more residential; - or a bus rapid transit stop, light or heavy rail station, commuter rail station, or ferry terminal. <p>All destinations must be 3-mile bicycling distance from project site. Include educational campaigns to encourage bicycling.</p>	Neighborhood/ Site Enhancement	0.25% - 1%	0% - 1.7%	X	X	X	X	X	X				X	X
3.2.9	Dedicate Land for Bike Trails	Larger projects may be required to provide for, contribute to, or dedicate land for off-site bicycle trails linking the project to designated bicycle commuting routes. This measure should be grouped with improving the connectivity of a development to the surrounding street network.	Neighborhood/ Site Enhancement	Grouped strategy with Improve Design of Development (3.1.9)		X	X	X	X	X	X	X			X	X

CAPCOA VMT Reduction Strategy						Land Use Applicability				Place Type Applicability			Implementation Body			
Number	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Updated VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Urban	Suburban	Rural	Property Manager/HOA	Tenant	Developer	County or Other Agency
3.3.1	Reduce Parking Supply	Parking supply refers to the total number of parking spaces provided at a residential site. The baseline parking level should reflect typical conditions at the project site rather than code requirements. The City can also reduce on-site parking supply in conjunction with an on-street residential parking permit program; this approach would require on-street parking management and monitoring. Parking supply reductions work best in the urban context, but the degree of effectiveness varies depending on the levels of alternative transit modes and the density of the project and surrounding areas.	Parking Policy/ Pricing	5% - 12.5%			X	X		X					X	X
3.3.2	Unbundle Parking	Unbundling parking separates the price of parking from the price of the property so that buyers/renters must purchase/rent parking in addition to the property. Thus, the cost of parking is paid for by those who use it, rather than the community in general. This strategy applies to residential land uses. For employment uses, see Price Workplace Parking (3.4.14) and Employee Parking Cash-Out (3.4.15).	Parking Policy/ Pricing	2.6% - 13%	2% - 12%		X	X		X	X		X		X	
3.3.3	Market-price public parking	Implementing market-price public parking is applicable for on-street parking near a central business district and employment or retail centers. This strategy is only effective if spillover parking (i.e. people parking in free/residential areas) is managed, such as through residential area permits. Market-price public parking can encourage people to park once and walk between destinations and may encourage enough mode-shift to justify increased transit service to the district. The VMT reduction applies to VMT from visitor/customer trips only.	Parking Policy/ Pricing	2.8% - 5.5%	2.8% - 14.5%	X	X		X	X	X					X
3.3.4	Residential Area Parking Permits	Residential area parking permits require residents to purchase permits for long-term use of on-street parking in order to reduce spillover from surrounding sites, such as commercial areas or transit stations.	Parking Policy/ Pricing	Group strategy with Limit Parking Supply (3.3.1: 5%-12.5%), Unbundle Parking (3.3.2: 2.6%-13%), or Market Rate On-Street Parking Pricing (3.3.3: 2.8%-5.5%)		X	X	X	X	X						X
3.4.3	Rideshare Program	A rideshare program includes TDM strategies designed to increase average vehicle occupancy by encouraging carpooling and vanpooling. Carpooling and vanpooling can be encouraged through programmatic features, such as a platform or database that matches potential riders (e.g. Zimride), and through incentives, such as payments to individuals who participate in each mode.	Commute Trip Reduction	1% - 15%	2.5% - 8.3%	X	X	X		X	X		X	X	X	X

CAPCOA VMT Reduction Strategy						Land Use Applicability				Place Type Applicability			Implementation Body			
Number	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Updated VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Urban	Suburban	Rural	Property Manager/HOA	Tenant	Developer	County or Other Agency
3.4.7	Promotions & Marketing	<p>Commuter trip reduction marketing programs are part of a traditional TDM program and often focus on advertising non-driving options to individuals. This may include direct outreach, help with trip planning, and development of promotional materials. This strategy can include the deployment of products, such as TransitScreen, that provide real-time transit and other transportation information in common spaces of a development. This strategy's efficacy is affected by the level of investment in the program, the staff involved, and the other measures implemented.</p> <p>Updated VMT reductions from this strategy vary depending on how it is implemented: 1) Vehicle trips reduction due to CTR marketing; 2) Reduction in VMT from institutional trips (e.g. university or large employer) due to targeted behavioral intervention programs</p>	Commuter Trip Reduction	0.8% - 4%	Two ranges, depending on how strategy is implemented: 1) 0.9% - 26% 2) 1% - 6%	X	X		X	X	X		X	X	X	X
3.4.9	Carshare Program	<p>A carshare program provides ad hoc short-term car rental services, such as services provided by ZipCar, Car2Go, and Gig. Vehicles are parked in parking spaces on or near the site and available for members to use on an hourly or per-mile basis. A carshare program should be paired with designated carshare parking spots for maximum effectiveness.</p> <p>A carshare program serves different purposes based on the land use. Transit station-based programs focus on providing the "last-mile" solution and link transit with commuters' final destinations. Residential-based programs work to substitute entire household based trips. Employer-based programs provide a means for business/day trips for alternative mode commuters and provide a guaranteed ride home option.</p> <p>VMT reductions assume 1%-5% penetration rate of carsharing use among the target population.</p>	Commuter Trip Reduction	0.4% - 0.7%	0.3% - 1.6%	X	X	X	X	X	X		X	X	X	X
3.4.10	School Carpool Program	School carpool programs function similarly to ridesharing programs. School carpool programs can fill in service gaps for public schools (e.g. students cannot walk or bike but do not meet requirements for the school bus) and provide options for students attending private schools. The VMT reduction applies to school drop-off/pickup VMT only, which is typically no more than 15% of average daily household VMT; the share of household VMT that is school trips can be found in a regional travel model or MPO report.	Commuter Trip Reduction	7.2% - 15.8%			X	X		X	X	X	X			X

CAPCOA VMT Reduction Strategy						Land Use Applicability				Place Type Applicability			Implementation Body			
Number	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Updated VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Urban	Suburban	Rural	Property Manager/HOA	Tenant	Developer	County or Other Agency
3.4.11	Neighborhood or Private Shuttles	<p>Private neighborhood or project shuttle implementation consists of new service that is provided only for residents, employees, or visitors affiliated with the project. Shuttles alone provide negligible reductions in VMT rates, and shuttles are normally implemented in a bundle with other transit infrastructure improvements. Private shuttles can consist of either point-to-point shuttles or last-mile shuttles connecting with major transit hubs.</p> <p>VMT reductions vary depending on how strategy is implemented:</p> <p>1) Reduction in commute vehicle trips due to implementing employer-sponsored vanpool and shuttle programs;</p> <p>2) Reduction in commute vehicle trips due to vanpool incentive programs;</p> <p>3) Reduction in commute vehicle trips due to employer shuttle programs</p>	Commuter Trip Reduction	0.3% - 13.4%	<p>Three ranges, depending on how strategy is implemented:</p> <p>1) 0.5% - 5%</p> <p>2) 0.3% - 7.4%</p> <p>3) 1.4% - 6.8%</p>	X	X	X	X	X	X	X	X	X	X	X
3.4.12	Bikeshare Program	A bikeshare system consists of bicycles available to individuals for short, one-way trips. Bikeshare can be implemented on a small scale, consisting of just a few bikes paid for and managed by property management or an HOA, or can be part of a citywide or regional program. A bikeshare program alone provides negligible reductions in VMT rates and is normally implemented in a bundle with other bicycle infrastructure strategies, such as the buildout of a bikeway network.	Commuter Trip Reduction	Grouped strategy with Bike Lane Street Design (3.2.5) and Improve Design of Development (3.1.9)		X	X	X	X	X	X		X	X	X	X
3.4.13	Implement School Bus Program	A project developer or manager would work with the school district to restore or expand school bus services in the project area and local community. As more families participate in the school bus program, more VMT would be reduced. VMT reduction applies to school trip VMT only.	Commuter Trip Reduction	38% - 63%	5% - 30%		X	X		X	X	X	X		X	X
3.4.14	Price Workplace Parking	Pricing workplace parking may include charging for parking, implementing above market rate pricing, validating parking only for invited guests, not providing employee parking and transportation allowances, and educating employees about available alternatives. Though similar to the Employee Parking "Cash-Out" strategy, this strategy focuses on implementing market rate and above market rate pricing to provide a price signal for employees to consider alternative modes for their work commute. The effectiveness of this strategy depends on the availability of alternative modes.	Commuter Trip Reduction	0.1% - 19.7%	0.5% - 14%	X	X		X	X	X		X	X		X
3.4.15	Employee Parking Cash-Out	Employee Parking Cash-Out programs require that employees who choose not to drive to work be paid the cash equivalent of a parking space that their employer would otherwise have to purchase. This incentivizes employees to take transit, bike, walk, or carpool to work, thereby reducing commute VMT. This strategy only applies at workplace locations where office tenants must rent parking spaces separately from their office space.	Commuter Trip Reduction	0.6%-7.7%	3%-7.7%		X		X	X	X		X	X		

CAPCOA VMT Reduction Strategy						Land Use Applicability				Place Type Applicability			Implementation Body			
Number	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Updated VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Urban	Suburban	Rural	Property Manager/HOA	Tenant	Developer	County or Other Agency
3.6.3	Required Contributions to Transportation Infrastructure Improvement Projects	Requiring projects to contribute a proportionate amount (i.e. "fair share") to transportation infrastructure improvements projects would fund traffic-flow improvements or multi-modal improvement projects, such as improving walking and biking facilities. Contributions could be right-of-way dedications, capital improvements, and easements.	Road Pricing Management	Grouped Strategy with Improve Traffic Flow (3.6.2) and Transit System Improvements (3.5.1-3.5.6)		X	X	X	X	X	X	X				X
3.6.4	Park-and-Ride Lots	Park-and-Ride lots are placed near transit stops/hubs and High Occupancy Vehicle lanes so that people can drive to the lot, park, and complete the remainder of their trip in a carpool/vanpool or on public transit.	Road Pricing Management	Grouped Strategy with Area/Cordon Pricing (3.6.1), Employer-Sponsored Vanpool (3.4.11), Ride-Sharing Programs (3.4.3), Transit System Improvements (3.5.1-3.5.6)		X	X	X	X		X	X				X
3.2.6 3.2.7	Bike Parking	Secure short-term and long-term bicycle parking can be provided for residents, employees, and visitors. Secure bicycle parking consists of the developer providing lockers, a secure bicycle room, or a bicycle station on-site. Secure bicycle parking should have coverage from the elements and should restrict access to only those parking in the facility.	Neighborhood/Site Enhancement	Grouped strategy with Improve Design of Development (3.1.9)		X	X	X	X	X	X	X	X		X	

Source:

California Air Pollution Control Officers Association (CAPCOA), *Quantifying Greenhouse Gas Mitigation Measures*, 2010. https://ww3.arb.ca.gov/cc/capandtrade/auctionproceeds/capcoa_quantifying_ghg_measures.pdf.

Updated VMT reduction estimate is based on CAPCOA research and supplemented with the latest published research on TDM effectiveness, if available.

Note that a wide range of VMT reduction strategies are contained in the above table. Strategies need to be applied in the appropriate land use and build environment/place type context.