

Appendix F

Vehicle Miles Traveled Estimation

Appendix F: Vehicle Miles Traveled Estimation – 2040 Ventura County General Plan EIR

This memorandum summarizes the regulatory context pertaining to Vehicle Miles Traveled (VMT) analysis requirements under CEQA, and provides more detailed technical information of the technical approach and parameters used to estimate baseline and future VMT reported in the Environmental Impact Report (EIR) for the Ventura County 2040 General Plan.

1. Regulatory Changes under CEQA: VMT

Recent regulatory changes to CEQA requirements under SB 743 now require transportation impacts to be analyzed using VMT as a metric. Passed in 2013, Senate Bill (SB) 743 required the Governor's Office of Planning and Research (OPR) to develop new CEQA guidelines that address transportation impact metrics under CEQA. Section 15064.3 was added to the State CEQA Guidelines effective December 28, 2018 as part of a comprehensive guidelines update. The guidelines address the determination of significance for transportation impacts under CEQA, requiring transportation impact analysis be based on VMT instead of a congestion metric (such as LOS) and states that a project's effect on automobile delay shall not constitute a significant environmental impact as previously required. While some jurisdictions may choose to retain LOS standards as a project's condition of approval, CEQA impacts or mitigations will no longer be based on LOS changes.

OPR published its proposal for the comprehensive updates to the CEQA Guidelines in November 2017 which included proposed updates related to analyzing transportation impacts, pursuant to Senate Bill 743. The updates indicated that VMT be the primary metric used to identify transportation impacts. In December of 2018, OPR published the most recent version of the Technical Advisory on Evaluating Transportation Impacts (December 2018) which provides guidance for VMT analysis. The Office of Administrative Law approved the updated CEQA Guidelines and lead agencies have an opt-in period until July 1, 2020 to implement the updated guidelines.

VMT was chosen as the primary metric to better integrate land use and multimodal transportation choices, to encourage alternative transportation, greater efficiency, and reduced GHG emissions. The most recent technical guidance on analyzing the transportation impacts under CEQA released by OPR in December of 2018 provides technical recommendations regarding assessment of VMT, thresholds of significance and mitigation measures. OPR (2018) offers a generalized recommendation of a 15 percent reduction below existing VMT as a threshold of CEQA significance. Trip- or tour-based based VMT analysis is recommended over boundary-based VMT analysis as the established and most appropriate methodology for analyzing VMT impacts under CEQA. Trip-based assessment of VMT captures the full extent of the vehicle trip length – even the portion that extends beyond the jurisdictional boundary. VMT impacts are assessed by quantifying trips to or from a jurisdiction, which start or end within the jurisdiction. Conversely, a boundary-based assessment of VMT impacts is quantified by the length of the vehicle trips that occur within the boundaries of a jurisdiction.

As noted in the updated guidelines, agencies are directed to choose metrics that are appropriate for their jurisdiction to evaluate the potential impacts of a project in terms of VMT. The guidance provided thus far relative to VMT significance criteria is focused on residential, office, and retail uses. For rural land uses, OPR guidance states that fewer options may be available for reducing VMT for projects in rural areas outside of a metropolitan planning organization and significance thresholds may be best determined on a case-by-case basis. Ventura County plans to adopt formal thresholds of significance under SB 743 prior to the July 1, 2020 deadline. In lieu of formally adopted thresholds of significance, VMT thresholds consistent with OPR's final technical guidance for the

analysis of transportation impacts under CEQA were applied in the analysis presented in the 2040 Ventura County General Plan EIR.

2. VMT Analysis: Methodological Approach

An integral step in the VMT analysis utilized to assess transportation impacts under CEQA is establishing baseline and forecasted VMT estimates for use in comparison against an established threshold to identify a significant impact. This information is presented in the Draft EIR of Ventura County's 2040 General Plan, and is described with more specific technical detail herein.

2.1 Description of Model Scenarios

In order to generate the baseline and future change in VMT per capita and net VMT resulting from the proposed 2040 General Plan, the recently updated Ventura County Transportation Commission (VCTC) countywide Travel Demand Model was used. The VCTC Travel Demand Model (TDM) uses the Caliper Trans Cad model development and operating software environment for all model components.

As part of the 2040 General Plan, the following two model scenarios were developed:

- 2012 Baseline Model – reflects the most recent validated baseline for Ventura County (i.e., existing land use and transportation network); and,
- 2040 Ventura County General Plan Land Use Model – this reflects the land use growth assumptions in the proposed Ventura County 2040 General Plan for the unincorporated areas and the Southern California Association of Government's (SCAG) 2016 Sustainable Communities Strategy (SCS) land use within the incorporated areas. The transportation network reflects all currently programmed transportation improvement infrastructure projects.

The source of the baseline and future 2040 land use of the VCTC model is from SCAG's 2016 Regional Transportation Plan and Sustainable Community Strategy. The land use within the unincorporated areas of Ventura County were reviewed by County staff for accuracy. Given that model traffic analysis zones (TAZs) are not coterminous with local political boundaries, the following steps were taken by VCTC to properly allocate the future land use growth associated with the 2040 General Plan for use within the model scenarios:

1. A reasonableness check was performed on the TAZ data originally provided by SCAG and land use corrections were made to TAZs where appropriate. These corrections were largely made within cities since SCAG worked closely with the County to initially establish their growth projections;
2. The County provided VCTC with unincorporated county population projections for 2020 and 2040 for the 2040 General Plan. These projections were used as a guide to refine the TAZ allocation by attempting to minimize the gap between the County and City numbers and total population by jurisdiction from the model's land Use to socio-economic data model output.
3. TAZ adjustments were performed through an iterative process. On first pass, a 51 percent rule and local knowledge of development patterns (i.e. East Area 1 development to Santa Paula) was used to allocate growth between shared border TAZs. This provided a fair means for allocating the vast majority city-county border TAZs.
4. Based on the information in Step 3, several individual TAZ adjustments were made in edge cases (notably in Oxnard and Camarillo).

2.2 Baseline VMT Estimates

A road inventory was provided in the Background Report based on information sourced from the Highway Performance Monitoring System (HPMS) using 2014 data. For the analysis presented in the Draft EIR, 2016 HPMS data was used to provide the “ground truth” boundary-based VMT estimate sourced from Caltrans Public Road Data. As shown in **Table K-1**, the countywide VMT estimate for Ventura County is 18,676,660. VMT occurring on local roadways in incorporated and unincorporated areas are reported by HPMS as 6,689,160 and 1,394,030, respectively. HPMS data reports state highway system (SHS) VMT separately; however, it does not explicitly distinguish between incorporated versus unincorporated area VMT occurring on the state highway system of the county.

To distinguish between incorporated and unincorporated area VMT occurring on state highways, the 2016 Caltrans Post-Mile based State Highway Volume Report was used to estimate the amount of state highway VMT occurring within unincorporated Ventura County. This was calculated by estimating the segment lengths between post-mile points and multiplying these lengths by the Average Daily Volume (ADT) reported in the Caltrans Volume Report (VMT = segment length x volume). This estimation resulted in an unincorporated state highway baseline VMT estimate of 3,519,851. The latter can then be added to the HPMS VMT estimates for local and other unincorporated roadways to yield the total boundary-based unincorporated Ventura County VMT estimate of 4,936,831. Incorporated and countywide VMT estimates were reported as reasonableness checks on the calculations performed to achieve the results displayed in **Table 2.1**.

Table K-1 2016 Ventura County Boundary-Based VMT Estimates

Total Countywide VMT (HPMS Boundary-based)	18,676,660
Unincorporated County Local Road VMT (HPMS Boundary-based)	1,394,030
Unincorporated County State Highway VMT (Caltrans ADT x SHS Miles)	3,519,851
Other Unincorporated VMT (HPMS Boundary-based)	22,950
Total Unincorporated VMT (HPMS Boundary-based + SHS estimate)	4,936,831
Total Incorporated Local Road VMT (HPMS Boundary-based)	6,689,160
Total Incorporated State Highway VMT (Caltrans ADT x SHS Miles)	7,037,589
Other Incorporated VMT (HPMS Boundary-based)	13,080
Total Incorporated VMT (HPMS Boundary-based + SHS estimate)	13,739,829

Source: 2016 HPMS (Caltrans, 2017), GHD via 2017 Caltrans Volume Report

The VMT estimates reported by HPMS do not reflect the full trip length of trips that cross jurisdictional boundaries (i.e., trip-based VMT). Pursuant to OPR guidance, and as described previously, full trip-length VMT estimates are preferred over boundary-based VMT for estimating greenhouse gas emissions from on-road mobile sources.

To reflect the full trip length of those trips that have one trip end (either beginning or ending) in Ventura County), VCTC and Santa Barbara County Association of Governments (SBCAG) travel demand model outputs were used to augment the amount of internal boundary-based VMT occurring with Ventura County. This entails estimating the amount of VMT that occurs outside Ventura County from interregional trips (i.e., internal-to-external (I-X) trips and external-to-internal (X-I) trips) occurring south and east of Ventura County. Given that the SBCAG regional travel demand model includes Ventura County in its modeling domain, the best approach for quantifying VMT from interregional trips north of Ventura County was to use the SBCAG model. This entailed processing similar output (i.e., trips with only one trip end in Ventura County) from the SBCAG model to compute interregional VMT

between Santa Barbara County and Ventura County. For counties south and east of Ventura County, the VCTC travel demand model was used.

As shown in **Table K-2**, the added VMT that occurs outside Ventura County from interregional trips is 9,697,737 (7,880,729 VMT from areas south and east of Ventura County plus 1,817,008 from areas north of Ventura County). Based on the HPMS data and unincorporated area state highway VMT, approximately 26.4 percent of total boundary-based VMT occurs in the unincorporated areas of Ventura County. This same percentage split was applied to the total added intercountry VMT estimate to yield the unincorporated portion of VMT that occurs outside Ventura County (2,563,418 VMT). Adding this increment of VMT to the total unincorporated boundary-based VMT estimate of 4,936,831 yields the total trip-based (i.e., full trip length) VMT estimate of 7,500,249 associated with unincorporated Ventura County. **Table K-2** displays this information.

Table K-2 2016 Ventura County Trip-Based VMT Estimates (Baseline)

Interregional VMT occurring south and east of Ventura County	7,880,729
Interregional VMT occurring north of Ventura County	1,817,008
% of Unincorporated Boundary-based VMT	26.40%
Total Unincorporated Boundary-based VMT	4,936,831
Total Unincorporated Interregional VMT	2,563,418
Total Unincorporated Trip-Based VMT	7,500,249
Total Countywide Trip-Based VMT	28,377,397

Source: VCTC 2012 Baseline Model, SBCAG 2015 Baseline Model

2.3 Forecasted VMT Estimates

A similar methodology was used to forecast future VMT as the approach used to estimate baseline VMT. **Table K-3** displays the 2040 projections of boundary-based VMT within Ventura County. Based on the 2040 VCTC and 2040 SBCAG travel demand model forecasts and the percentage distribution of boundary-based unincorporated VMT, the amount of trip-based VMT associated with the unincorporated Ventura County is 8,173,937 per day.

Table K-3 Ventura County Daily VMT Estimates (2040 Forecast)

Total Unincorporated Boundary-based VMT	5,337,751
Total Incorporated Boundary-based VMT	14,855,640
Interregional VMT occurring south and east of Ventura County	8,700,996
Interregional VMT occurring north of Ventura County	2,042,133
% of Unincorporated Boundary-based VMT	26.40%
Total Unincorporated Interregional VMT	2,836,186
Total Unincorporated Trip-Based VMT	8,173,937
Total Countywide Trip-Based VMT	30,936,520

Source: VCTC 2040 Model, SBCAG 2040 Model, 2016 HPMS, GHD via 2017 Caltrans Volume Report