

Appendix D

Vehicle Miles Traveled Analysis Memorandum

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Re: *City of Folsom – SACOG Increasing Residential Capacities Implementation (REAP)*
REVISED DRAFT *Vehicle Miles Traveled Analysis*

Date: April 9, 2024

This memorandum documents SB 743 compliant Vehicle Miles Traveled (VMT) analysis completed for the proposed SACOG Increasing Residential Capacities Implementation (REAP) Project (“Project” or “proposed Project”) in the City of Folsom, CA. The proposed Project is creating additional opportunities for high-density housing to ensure the City maintains an adequate capacity to meet its lower-income RHNA throughout the 2021 to 2029 planning period. The City’s 2021-2029 Housing Element includes a program (Program H-2) to strategically increase maximum densities in the East Bidwell Mixed Use Overlay, SACOG Transit Priorities Areas, and the Folsom Plan Area Specific Plan (FPASP) Town Center. To implement the increase in densities, a general plan amendment and FPASP specific plan amendment, along with the associated environmental analyses is required.

With the passage of SB 743, VMT has become an important indicator for determining if new development will result in a “significant transportation impact” under the California Environmental Quality Act (CEQA). This memorandum summarizes the VMT analysis and resultant findings for the proposed Project.

Purpose of Analysis

Senate Bill 743 (2013) changed the focus of transportation impact analyses in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change was made by replacing Level of Service (LOS) with VMT. This shift in transportation impact focus was intended to better align transportation impact analyses and mitigation outcomes with the State’s goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through more active transportation. LOS or other delay metrics may still be used to evaluate the impact of projects on drivers as part of land use entitlement review and impact fee programs. Accordingly, traditional LOS was considered for the analysis of the proposed Project and is provided under separate cover.

In January 2019, the Natural Resources Agency finalized updates to the CEQA Guidelines including the incorporation of SB 743 modifications. The Guidelines’ changes were approved by the Office of Administrative Law and are now in effect. The provisions apply statewide as of July 1, 2020.

To aid lead agencies with SB 743 implementation, the Governor’s Office of Planning and Research (OPR) produced the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) that provides guidance regarding the variety of implementation questions they face with respect to shifting to a VMT metric. Key guidance from this document includes:

- VMT is the most appropriate metric to evaluate a project’s transportation impact.
- OPR recommends tour- and trip-based travel models to estimate VMT, but ultimately defers to local agencies to determine the appropriate tools.
- OPR recommends measuring VMT for residential and office projects on a “per rate” basis.
- Lead agencies have the discretion to set or apply their own significance thresholds.

The City of Folsom does not currently have VMT thresholds and analysis guidelines to use as the basis of the analysis. Therefore, the Sacramento County Guidelines¹ and OPR guidelines were used as the basis of the analysis contained herein. The VMT threshold of significance that is used as the basis of this Project is summarized below:

- Residential – 15% below existing citywide VMT per capita

Methodology and Assumptions

Based on the land use information provided, for the purposes of SB 743 analysis and the determination of transportation related significant impacts, the following land uses were analyzed:

- Residential
- Retail

To complete the VMT analysis, the City of Folsom's General Plan Travel Demand Model (Folsom TDM) was used. The Folsom TDM contains a base year of 2015 and future year of 2035, both of which were used to determine the VMT impact of the proposed residential land uses. While the change in non-residential land uses included as part of the proposed Project were incorporated into the Folsom TDM, based on the nature of the land use descriptions provided, the retail land uses were analyzed qualitatively. These changes include a reduction in standalone commercial and industrial uses to be replaced by additional housing. In addition, portions of the Project include mixed-use buildings that will be comprised of retail uses on the ground floor with residential units on the floors above. Thus, while there is an overall reduction in non-residential uses, certain portions of the Project area include an increase in retail uses.

The Folsom TDM is based on the regional SACMET model which is a trip-based travel demand model rather than SACOG's activity-based travel demand model, SACSIM, which is the recommended tool in Sacramento County's guidelines. This is due to the limited detail that SACSIM has for the City of Folsom, in particular south of US-50. The Folsom TDM contains more minute detail for both land use and roadway network assumptions and was determined to be the tool to use to complete the VMT analysis. As such, the VMT analysis was completed using a tool that was developed for the Folsom TDM rather than the process used to complete VMT analyses using SACSIM.

To determine the length of intrazonal trips that both start and end within each Traffic Analysis Zone (TAZ), an estimation process was conducted as the trips are never assigned to the roadway network as they never leave the TAZ. Therefore, using the Folsom TDM, the intrazonal trip lengths are estimated by calculating half of the shortest travel distance between a given TAZ and all the other TAZs, using the Folsom TDM's midday assignment. The midday 5-hour assignment period is used to calculate intrazonal travel because there is generally less traffic and less congestion (i.e., compared to the AM or PM peak periods) and is more representative of average daily conditions.

The TAZ structure was modified slightly to separate the Project land uses from the TAZ within which each parcel is located into their own TAZs. Other than adding centroid connectors to load Project traffic to the roadway network, no other modifications were made to the Folsom TDM roadway network as a part of this analysis.

Based on the adopted guidelines and thresholds, a project is considered to result in a significant impact if the VMT per Capita for the project exceeds 85-percent of the Citywide average for the respective metric as noted in the previous section.

¹ *Transportation Analysis Guidelines*. County of Sacramento. September 10, 2020.

Project Land Use Model Input Conversion

In order to represent the proposed Project's land uses in the Folsom TDM, the land uses needed to be converted into households, population, and jobs. The number of units and change in non-residential square-footages was provided by Ascent Environmental², categorized by parcel location. This analysis assumes that the proposed Project is comprised of 4,164 units in the four districts north of US-50 and 1,882 multi-family residential units in the Folsom Plan Area south of US-50. The analysis also assumes that the proposed Project includes an overall net decrease of 251,266 square-feet of non-residential uses throughout the City.

While there was a net decrease in total square-foot for the non-residential land uses, certain TAZs included a net increase in retail uses due to the assumed mixed-use buildings in those TAZs. Therefore, to convert the non-residential land uses to the number of employees input into the Folsom TDM, as the Folsom TDM takes employees as the input for non-residential uses rather than total square-feet, the ratio of daily trip generation rates listed in the *Trip Generation Handbook, 11th Edition* published by the Institute of Transportation Engineers (ITE) between 1,000 square-feet and employees was used. The number of daily trips produced by the size of each of the land use codes for retail was used to back calculate the number of employees based on each land use's equation for the number of trips that are produced by each employee.

The Folsom TDM uses dwelling units as its input for residential uses and differentiates between single-family and multi-family residential in terms of trip generation and distribution. However, the Folsom TDM does not contain a population synthesis step and instead includes a second land use input file that summarizes households into three socioeconomic categories based on data collected throughout the SACOG region to produce groups of households that contain their own trip making characteristics. The three categories include the number of people per household (1, 2, 3, or 4+), the number of workers per household (0, 1, 2, or 3+), and the household income category (five categories). The proposed Project's residential uses were distributed into the household categories based on similar neighborhoods identified in the City of Folsom and grouped by TAZ based on parcel location.

Analysis

The following sections detail the analysis completed:

Residential Land Uses

VMT was calculated for the proposed Project using three separate steps. First, the travel distance between each pair of TAZs was calculated using the loaded network to model real world conditions. This step included the trip length alteration for intrazonal, XI, and IX trips. The second step calculated the VMT between each TAZ by multiplying the number of trips between each TAZ by the calculated distance between each TAZ, including the intrazonal trips. Finally, the VMT was categorized as either home-based or home-based work VMT. This categorization is completed by determining the percentage of vehicle productions and attractions by trip purpose and direction (departures and returns). These percentages are then applied to the total VMT estimates, to determine the VMT by trip purpose and direction. The home-based VMT summarizes VMT by the production TAZ for residential uses.

To determine the residential VMT produced by the Project, the Home Based VMT for the Project's TAZs was totaled and divided by the total residential population to obtain a VMT per Capita value for the Project.

² Email from Haley Shaver, Ascent Environmental. June 29, 2023.

Table 1 summarizes the VMT per Capita for the proposed Project and compares it to the Citywide threshold. As shown in **Table 1**, the Project results in a VMT per Capita above the County’s threshold.

Table 1 – Vehicle Miles Traveled (VMT) by Land Use and Scenario

Scenario	VMT/Capita (Residential)
Calculated VMT per Capita by Scenario	
City Average	8.83
City Threshold	7.51
Cumulative No Project City Average	7.76
Cumulative plus Project City Average	8.27
Cumulative plus Project, Project Average	7.94
VMT per Capita as a Percent of Threshold by Scenario	
Cumulative Plus Project	105.7%
Over Threshold?	
Cumulative No Project	Yes
Cumulative Plus Project	Yes

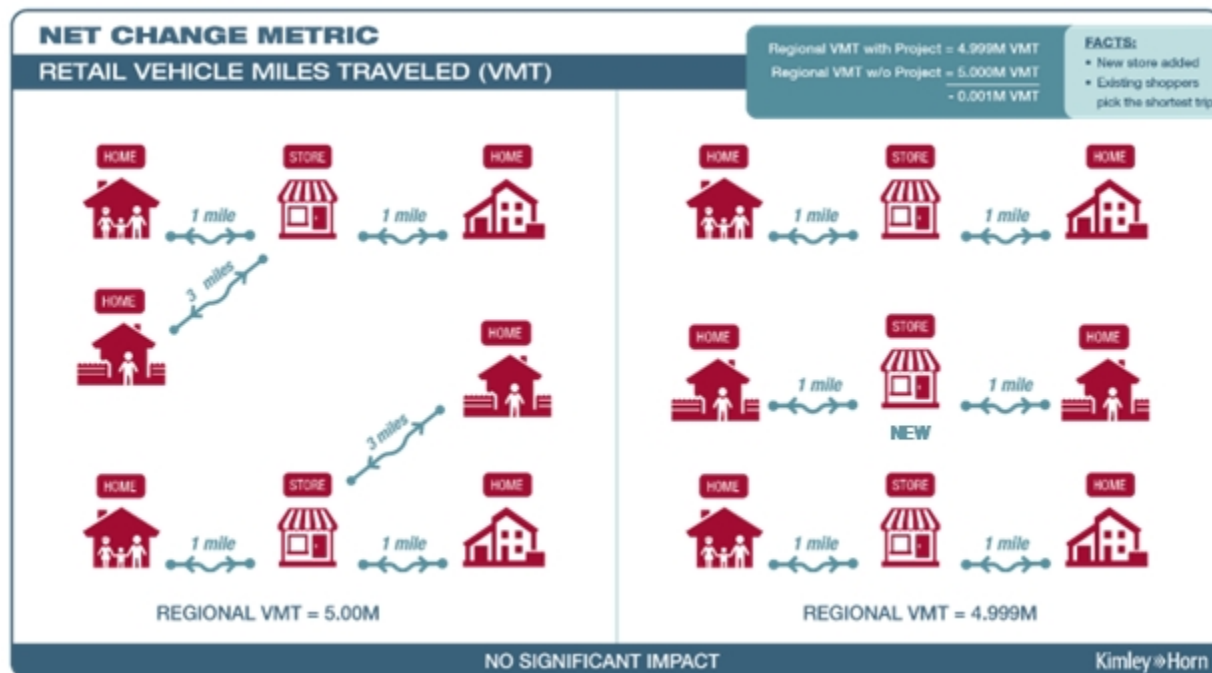
Retail Land Uses

As described previously, the retail land uses were analyzed qualitatively. Page 8 and 10 of the Sacramento County Guidelines specifically addresses some of the key issues surrounding how a local serving retail store should be evaluated in terms of its VMT impact. As described, the threshold for significance for retail land uses is “a net increase.” This means that if a proposed retail use results in additional VMT, it would result in a finding of significance.

Local serving retail primarily serves pre-existing needs (i.e., they do not generate new trips because they meet existing demand). Because of this, local-serving retail uses can be presumed to reduce trip lengths when a new store is proposed. Essentially, the assumption is that someone will travel to a newly constructed local serving store because of its proximity, rather than the proposed retail store fulfilling an unmet need (i.e., the person had an existing need that was met by the retail located further away and is now traveling to the new retail use because it is closer to the person’s origin location). This results in a trip on the roadway network becoming shorter, rather than a new trip being added to the roadway network, which would result in an impact to the overall transportation system. Conversely, residential and office land uses often drive new trips given that they introduce new participants to the transportation system. The Sacramento County Guidelines provides for a general threshold of 125,000 square-feet as an indicator as to whether a retail store can be considered local serving or not for infill locations. Based on the understanding that no single store within the Project’s retail uses will exceed 125,000 square feet, the retail components of the proposed Project would meet the Sacramento County screening criteria for local-serving retail and would, therefore, be presumed to result in a less than significant impact to VMT. Note that by increasing mixed-use development throughout the City, the Project would be increasing and locating residential, employment, and retail uses within close proximity to one another, likely reducing trip distances.

Exhibit 1 has been provided to visually demonstrate the basis of this finding. Note that the numbers provided are for illustrative purposes as the analysis technique used is qualitative.

Exhibit 1 – Illustration of the VMT Reducing Effect of Local Serving Retail



Project Features as VMT Reductions

Prior to making a determination as to whether the addition of the proposed Project results in a VMT impact, the VMT reductions related to project features that are not able to be integrated into the Folsom TDM were calculated. The Folsom TDM is limited in its ability to represent all Project features such as the amount of affordable housing the Project assumes. While the Folsom TDM does include five levels of household income, it has not gone through a calibration and validation process to make a determination that it accurately represents the differences in trip making characteristics of affordable housing compared to market rate housing. The City of Folsom has determined that based on the rate of existing affordable housing development within the City, that 26-percent of the Project’s units on average will be low-income units.

To determine the trip generation rates for affordable housing units, ITE’s Trip Generation Manual was used as a point of reference. In addition, trip distances for different purposes, income groups, and housing options were calculated using distinct methods that leverage advanced big data analytics using the Replica platform to analyze extensive datasets on trip lengths within the City of Folsom. This approach harnesses the power of cutting-edge data analysis techniques to derive precise and reliable estimates of trip distances.

Using the methods described above, two modifications were made for the VMT for the low-income (51%-80% of area median income) households. The first included a trip generation reduction in which the trip generation rates were reduced based on ITE data, summarized in **Table 2**. As shown in **Table 2**, this resulted in a reduction in trip generation of 49-percent.

Table 2 – Daily Trip Generation Rate by Land Use

ITE Land Use Code	ITE Land Use Description	Daily Trip Generation Rate
210	Single-Family Detached Housing	9.43
223	Affordable Housing	4.81
Affordable Housing Reduction (%)		49%

The trip distance reduction, in which trip distances were reduced based on factors derived from an analysis of big data, is summarized in **Table 3**. As shown in **Table 3**, this resulted in a reduction in trip distance of 29-percent for the affordable units.

Table 3 – Average Trip Distance by Income Level

Income Level	Average Trip Distance (mi)
All Income Levels	10.24
Low Income (51% - 80% of Area Median Income)	7.27
Low Income Reduction (%)	29%

The reductions summarized in **Table 2** and **Table 3** were used to recalculate the VMT per capita for the proposed Project. These reductions reduced the proposed Project’s VMT per capita from 7.94 to 6.62, or 17-percent below the Citywide threshold as shown in **Table 4**. Therefore, the proposed Project is determined to have a **less than significant transportation impact for the Project’s residential uses**.

Table 4 – Vehicle Miles Traveled (VMT) by Land Use and Scenario

Scenario	VMT/Capita (Residential)
Calculated VMT per Capita by Scenario	
City Average	8.83
City Threshold	7.51
Cumulative plus Project, Project Average (no Reductions)	7.94
Cumulative Plus Project, Percent Affordable Housing	26%
Cumulative Plus Project, Affordable Housing Project Average	2.87
Cumulative plus Project, Project Average (Affordable Housing Reductions)	6.62
Cumulative Plus Project with Affordable Housing Reductions, Percent Below City Threshold	17%
Over Threshold?	
Cumulative plus Project	No

Qualitative Discussion

The quantitative VMT analysis described and summarized in the previous section represents a conservative analysis of the effects on the City's transportation system resulting from the addition of the Project. However, this analysis does not include future roadway improvements or future projects that are known, but not yet approved or funded. Therefore, this section is provided to add context to the above analysis and includes a qualitative discussion of the effect of including future roadway improvements and future projects with the Project's VMT analysis results.

The two potential roadway improvements that would affect the results of the Project's VMT analysis results include the Rowberry Overcrossing, connecting Alder Creek Parkway south of US-50 with Iron Point Road at Rowberry Drive north of US-50, and the Empire Ranch Road interchange with US-50. These two roadway projects were not included in the analysis as their funding and timing are uncertain at this time. Only known, and funded improvements were included in the VMT analysis conducted for the Project. These two projects' connections would reasonably be anticipated to shorten trip lengths by providing drivers attempting to cross US-50, or in the case of the Empire Ranch Road interchange provide access US-50 directly, a more direct route, thus lowering the Project's overall VMT per capita.

The two proposed land use projects that were not included in the Project's VMT analysis are the proposed Kaiser hospital expansion project and proposed Sutter Medical facility. As these two projects have not yet been approved by the City and the timing of their construction are unknown at this time, they were not included as a part of the analysis. However, if the two projects were included in the analysis, they would likely lower VMT for the Project as they would provide additional employment and medical service opportunities within the City for which some residents currently travel outside the City. As the Project adds a large amounts of residential units throughout the City, if these two medical projects were included in the analysis, the City overall would have a more balanced jobs-to-housing ratio which would likely lower the Project's VMT per capita further.

Finally, it should be noted that while the affordable housing percentage used in this analysis, 26-percent, is based on the City's existing affordable housing ratio, the City's Regional Housing Needs Assessment (RHNA) allocation states that 56-percent of the City's future residential units, on average, will be low-income units. If the 56-percent value was used in place of the 26-percent value assumed in the quantitative analysis described above, the Project's VMT per capita would be lower than what is shown in **Table 4**.

Findings

Based on the results of this analysis, the following findings are made:

- **Table 1** summarizes the VMT per Capita for the proposed Project by and compares it to the Citywide threshold. As shown in **Table 1**, when the affordable housing units are not factored in, the Project results in a VMT per capita above the County's threshold, 7.94 VMT per capita vs. a threshold of 7.51 VMT per capita.
- Using the trip reductions summarized in **Table 2** and **Table 3** to better represent the trip making characteristics of the 26-percent of units assumed to be affordable housing as part of the proposed Project (deed restricted to lower-income households), the VMT per capita for the proposed Project is reduced to of 6.62, or 17-percent less than the Citywide threshold, as shown in **Table 4**. Therefore, the proposed Project is determined to have a **less than significant transportation impact for the Project's residential land uses**.
- The proposed Project's retail stores are assumed to be smaller than 125,000 square-foot per store as part of the mixed-use components of the proposed Project. Using the screening criteria contained within the Sacramento County Guidelines, **the retail stores are presumed to have a less than significant impact**.
- The quantitative VMT analysis described and summarized in this memorandum represents a conservative analysis of the Project's effects on the City's transportation system. However, this analysis does not include future roadway improvements or future projects that are known, but not yet approved or funded.
 - If the Rowberry Overcrossing and Empire Ranch Road interchange were included in the Project's quantitative VMT analysis, these two projects' connections would reasonably be anticipated to shorten trip lengths by providing drivers attempting to cross US-50, or in the case of the Empire Ranch Road interchange provide access US-50 directly, a more direct route, thus lowering the Project's overall VMT per capita.
 - If the proposed Kaiser hospital expansion project and proposed Sutter Medical facility were added to the Project's quantitative VMT analysis, they would provide additional employment and medical service opportunities within the City. As the Project adds a large amounts of residential units throughout the City, the addition of these two medical projects would result in a more balanced jobs-to-housing ratio which would likely lower the Project's VMT per capita further.
 - The City of Folsom's Regional Housing Needs Assessment (RHNA) allocation states that 56-percent of the City's future residential units, on average, will be low-income units. If the 56-percent value was used in place of the 26-percent value assumed in the Project's quantitative VMT analysis, the Project's VMT per capita would be lower than what is shown in **Table 4**.