

APPENDIX G

VMT Analysis

MEMORANDUM

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City of Carson

From: Pranesh Tarikere, PE
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Date: May 4, 2023

Subject: Figueroa Street Business Park Project – VMT Analysis

The memorandum documents Vehicle Miles Traveled (VMT) Analysis for the proposed Figueroa Street Business Park Project (Project) in the City of Carson.

Project Description

The project is located in the west-central portion of the City of Carson, in the County of Los Angeles. The Project Site is located just east of the I-110 Northbound Ramps on Figueroa Street. The project location is shown on **Figure 1** and the project site plan is shown on **Figure 2**. The applicant proposes to construct a Business Park with the following land uses:

- LU 140 – Manufacturing: 29,127 square-feet
- LU 150 – Warehousing: 280,139 square-feet
- LU 822 – Strip Retail Plaza: 4,000 square-feet

Senate Bill 743 (SB 743)

SB 743, approved in 2013, mandated a change in the way transportation impacts are determined according to the California Environmental Quality Act (CEQA). The Governor's Office of Planning and Research (OPR) has directed the use of VMT as the replacement for automobile delay-based LOS for the purposes of determining a significant transportation impact under CEQA. As of December 2018, the Natural Resources Agency finalized updates to CEQA Guidelines to incorporate SB 743 (i.e., VMT). To assist in the implementation of VMT as the primary measure of a transportation impact under CEQA, the OPR published an updated Technical Advisory on Evaluating Transportation Impacts in CEQA in December 2018. Statewide application of the new guidelines went into effect on July 1, 2020.

As the City of Carson has yet to establish its own specific analysis guidelines and/or thresholds, the analysis completed was based on the most recent guidance prepared by the Governor's OPR *Technical advisory on Evaluating Transportation Impacts in CEQA* (December 2018), as well as the Los Angeles County Transportation Impact Analysis guidelines. Consistent to the LA County guidelines, the City recommends utilizing the Southern California Association of Government (SCAG) Travel Demand Model as its methodology to measure VMT.

VMT Thresholds

The following VMT criteria were considered for this analysis as thresholds for determining significant impact.

Project VMT Thresholds

Based on the County guidelines, a project would result in a significant project generated VMT impact if either of the following conditions are satisfied.

- Residential Projects. The project's residential VMT per capita exceeding would not be 16.8% below the existing Citywide residential VMT per capita.
- Office Project. The project's employment VMT per employee exceeding would not be 16.8% below the existing Citywide employment VMT per employee.
- Regional Serving Retail Projects. The project would result in a net increase in existing total VMT.

For other land use such as warehouse and distribution centers the County guidelines recommended using one of the above thresholds in consultation with the City/County staff. For the purpose of this analysis and in consultation with the City staff the Employment VMT per employee was used to evaluate the project VMT impacts.

Initial VMT Screening

This section documents Vehicle Miles Traveled (VMT)/ SB 743 considerations for the project. The County Guidelines provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed level analysis. Screening thresholds are broken into the following three steps:

1. Transit Priority Areas (TPA) Screening

As described in the OPR Guidelines, projects located within half mile from an existing major transit stop or within half of a mile from an existing stop along a high-quality transit corridor can be screened out. The Project site is not served by any major public transit routes. Therefore, the Project does not meet the criteria that would qualify it for the TPA screening.

2. Low VMT-Generation Area Screening

Projects generating VMT below 16.8% below regional average can be screened out based on the Los Angeles County guidelines. The County developed thresholds separately for the north and south County areas. Since the City of Carson falls in the south county, the regional average of the north county is considered for VMT screening. The existing project area VMT was calculated for the project TAZ which is higher than the County threshold. Therefore, the project is not screened out based on the low VMT-Generation Area screening. The County average VMT efficiency metric and threshold based on the County guidelines are shown in **Table 1**.

Table 1 – LA County Thresholds and Project Area VMT (Initial Screening for Low VMT Area)

Land Use and Efficiency Metric	Existing South LA County Avg. VMT	VMT Threshold	Project Area VMT	Potentially Significant
Non-Residential: Employment VMT per Employee	18.4	15.3 (83.2%)	19.79	Yes

3. Project Type Screening

Some project types have been identified in the County guidelines as having the presumption of a less than significant impact. The following use can be presumed to have a less than significant impact absent substantial evidence to the contrary as their uses are local serving in nature:

- Projects generating less than 110 daily vehicle trips

The proposed project is estimated to generate more than 110 daily vehicle trips and therefore is not screened out initially based on Project Type screening. Trip generation for the Project is shown in **Table 2** below.

Table 2 – Project Daily Trip Generation

ITE Code	Land Use Description	Units	Quantity	Daily Total Vehicle Trips
140	Manufacturing	KSF	29,127	138
150	Warehousing	KSF	280,139	479
822	Strip Retail Plaza	KSF	4,000	210
Proposed Total				827

A land use project needs only meet one of the above screening thresholds to be presumed to result in not significant impact under CEQA pursuant to SB 743. As mentioned above, the Project is considered to have not met any of the criteria that would qualify it to be non-significant and therefore a complete VMT analysis was conducted to further analyze the VMT impacts.

VMT Analysis

For projects other than residential, office or retail, OPR does not specifically recommend an efficiency metrics to analyze the project VMT. However, it has been a standard practice to analyze work related development projects using the Employment VMT. A logical way to evaluate this type of land use is to consider home-base-work trip purpose of the project. The following discussion is provided regarding the trip types.

Home-Based-Work trips. These are the primary automobile trips associated with any type of employment such as the proposed project. The employment generating land use is expected to generate trips related to work as well as intermediate trips in between. The efficiency of VMT associated with home-based-work trips has been assessed based on the SCAG Travel Demand Model consistent with the County’s draft guidelines.

Project VMT was derived using the most current version of SCAG. The SCAG model is a trip-based model and considers interaction between different land uses based on socio-economic data such as population, households and employment. Adjustments in socio-economic data (employment) were made to the appropriate traffic analysis zone (TAZ) within the SCAG model to reflect the Project’s proposed land use. **Table 3** shows the Project household and employment numbers added to the appropriate project TAZ in the SCAG model. The project TAZ (Tier2) in the SCAG model modified for the analysis is shown in the **Figure 3**.

Table 3 – SCAG Model Project Socio-Economic Data

TAZ (Tier 2)	Total Additional Employment
TAZ # 21326100	201

The calculation of vehicle miles traveled has two components – the total number of trips generated and the average trip length of each vehicle. As the proposed project is an employment related land use, trip attractions were used from the home-based-work trip purpose matrices in the SCAG model. Using the peak and off-peak person trip matrices, skim (distances) matrices and appropriate occupancy rates, VMT was calculated for the project traffic analysis zone (TAZ). The following discussion is provided regarding these trip types and VMT evaluation metrics.

Project Employment-Based VMT per Employee

The employment-based VMT per employee is the Home-Based-Work attraction VMT divided by total employment derived from the SCAG model. The Home-Based-Work VMT per Employee is used to measure efficiency of VMT generated by work related uses. The project area Home-Based-Work VMT per Employee for the existing and existing plus project conditions were calculated based on the SCAG model and compared to evaluate VMT impacts.

Project Employment VMT

Table 4 shows the project area VMT for the With and Without Project conditions and threshold for the South Los Angeles County. As shown in the table, the proposed project will not reduce the project area VMT and will continue to be above threshold resulting in a significant VMT impact. The project area requires approximately 17% reduction in VMT to be considered as non-significant impact.

Table 4 – Project VMT Impact Evaluation

Land Use and Efficiency Metric	Existing South LA County Avg. VMT	VMT Threshold	Existing+Project Project Area VMT	Potentially Significant
Warehouse: Employment VMT per Employee	18.4	15.3 (83.2%)	18.44	Yes

Note: VMT metrics and thresholds are calculated based on the Base Year 2012 SCAG model runs.

The VMT values in **Table 4** are based on the methodology recommended by OPR Guidelines. Both the with and without project total VMT values were calculated using the same model and methodology for consistent comparison.

Project Effect on Regional VMT

For projects other than residential, office or retail, OPR does not specifically recommend an efficiency metrics to analyze the project VMT. However, it has been a standard practice to analyze local or regional serving development projects using the net change in Total VMT. A logical way to evaluate this type of land use is to consider all trip purpose of the project such as home-based-work, home-based-other, work-based-other, other-based-other. This approach also considers project’s location close to the port and thus lower truck trip length.

Total regional VMT was derived using the most current version of SCAG. The SCAG model is a trip-based model and considers interaction between different land uses based on socio-economic data such as population, households and employment. Adjustments in socio-economic data (employment) were made to the appropriate traffic analysis zone (TAZ) within the SCAG model to reflect the Project’s proposed land use. **Table 5** shows the total VMT in South Los Angeles County for the With and Without Project conditions, and resultant net change in VMT. As shown in the Table the proposed project will result in a reduction of VMT in the region.

Table 5 – Project VMT Impact Evaluation

Region	Existing Without Project	Existing With Project	Net Change in VMT	Net % Change in VMT
South Los Angeles County	393,075,549	393,202,635	-127,086	-0.03%

Note: Total VMT is calculated based on the Base Year 2012 SCAG model runs.

The VMT values in **Table 5** are based on the methodology recommended by OPR Guidelines. Both the with and without project total VMT values were calculated using the same model and methodology for consistent comparison.

Impacts

The Project’s transportation impact based on the quantitative VMT analysis of VMT per Employee is significant based on County of Los Angeles recommended thresholds.

The net change in VMT in the region is expected to reduce with the proposed Figueroa Street Business Park Project. Therefore, the proposed project is determined to not have a significant transportation impact to the cumulative regional VMT.

Mitigation

If a significant transportation impact is identified, feasible mitigation measures to avoid or reduce the impact must be identified. CEQA requires that the mitigation measures be included in the project’s environmental assessment. OPR provides a list of potential measures to reduce VMT but gives the lead agency full discretion in the selection of mitigation measures.

For an individual development project, VMT mitigations will typically require the preparation of a transportation demand management (TDM) program.

TDM strategies were considered for reducing VMT impacts determined to be potentially significant:

1. Transit: Providing transit passes to employees
2. Commute Trip Reduction Program: Commuter incentives, transit subsidies, parking cash out, commute marketing program, carpool/vanpool incentives
3. Commute Trip Reduction Marketing

4. Local Hire Consideration

VMT reduction potential based on California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity are presented below.

Implement Subsidized or Discounted Transit Program

This measure will provide subsidized or discounted, or free transit passes for employees. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions.. CAPCOA Handbook shows mitigation potential of up to 5.5% of GHG emissions from project employee commute VMT from this measure.

Voluntary Commuter Trip Reduction (CTR) Program

This measure will implement a voluntary commute trip reduction (CTR) program with employers. CTR programs discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions. CAPCOA Handbook shows mitigation potential of up to 4% of GHG emissions from project employee commute VMT from this measure.

Commuter Trip Reduction Marketing

This measure will implement a marketing strategy to promote the project site employer's CTR program. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.. CAPCOA Handbook shows mitigation potential of up to 4% of GHG emissions from project employee commute VMT from this measure.

Local Hire Consideration

The effectiveness of TDM measures will depend on the tenant and it will be difficult to quantify the VMT reduction for a speculative project. As such, in addition to the standard TDM measures, local hire considerations of incentives for hiring of employees locally is recommended, in which monitoring the residential location of workers and the number of employees that live locally will help to calculate the average employee commute trip length and determine whether it is within the identified employee VMT trip threshold of 15.3 VMT per employee trip. The project applicant or tenant would be responsible for providing information to the City on the average commute distance of the employees if required by the City.

The approach of implementing the above TDM measures to educate, monitor, and facilitate trip and home-based work VMT reductions along with local hiring considerations would assist in reducing the Project's potential VMT impacts.

Summary

This technical memorandum documents the process to determine the potential VMT impacts of the Figueroa Street Business Park Project located just east of the I-110 Northbound Ramps on Figueroa Street in the City of Carson. The following summarizes the results of this analysis:

- The project proposes the following land uses:
 - LU 140 – Manufacturing: 29,127 square-feet
 - LU 150 – Warehousing: 280,139 square-feet
 - LU 822 – Strip Retail Plaza: 4,000 square-feet

- The project does not meet the project size screening criteria or low VMT screening area options provided in the OPR *Technical Advisory*; hence the project was evaluated using employment VMT methodologies consistent with guidance from that advisory document.
- Based on the results of the VMT methodologies outline in this memorandum, the project will result in a significant impact for the VMT per employee metric.
- The VMT thresholds and screening criteria applied in this study are based on CEQA guidance and VMT reduction goals provided by the OPR *Technical Advisory*.
- The project was determined to have a significant impact that could be mitigated below a level of significance with the implementation of the TDM program and local hiring considerations described above.



NOT TO SCALE

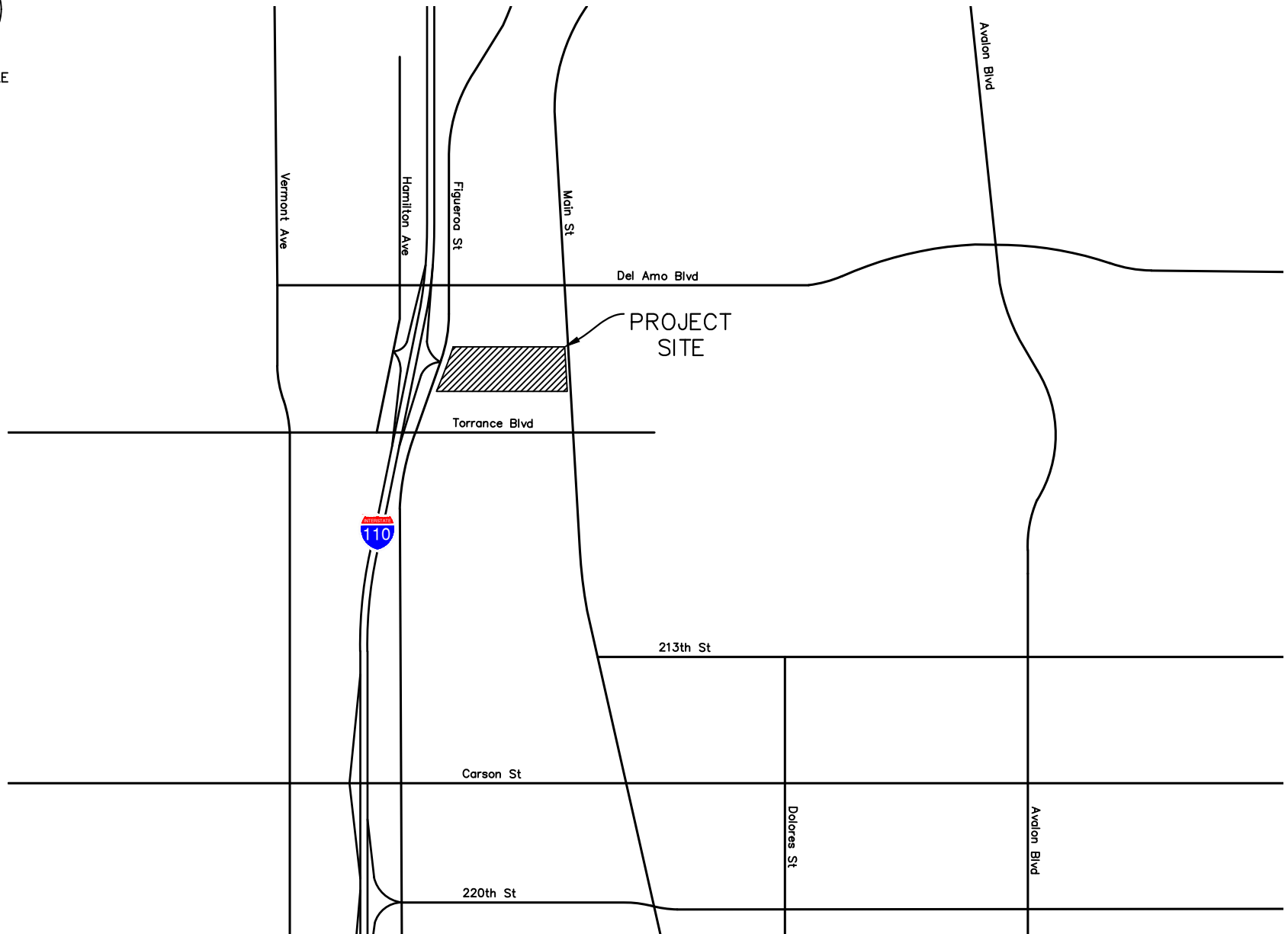


FIGURE 1
VICINITY MAP



NOT TO SCALE

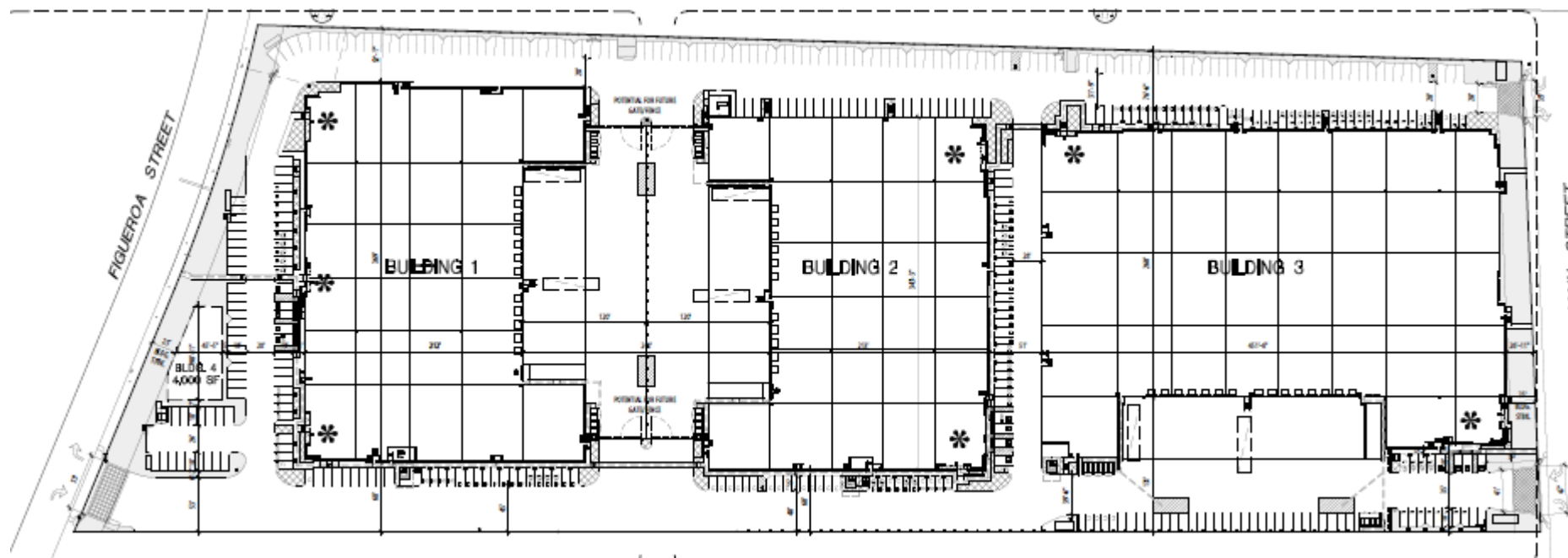


FIGURE 2
PROJECT SITE PLAN

Figure 3: SCAG Model Project TAZ

