



TECHNICAL MEMORANDUM

VMT THRESHOLDS AND PROCEDURES

DATE: May 21, 2021

TO: Brian Halvorson | City of Lompoc

FROM: Jim Damkowitch and Erin Vaca | DKS Associates

SUBJECT: City of Lompoc SB 743 Implementation –VMT Analysis Procedures

Project: TA 21 -02

EXECUTIVE SUMMARY

The City of Lompoc’s proposed SB 743 VMT (Vehicle Miles Traveled) screening criteria are listed in **Table ES-1**. The City’s proposed VMT thresholds are listed in **Table ES-2**. Maps showing VMT per capita rates (for residential developments) and VMT per employee rates (for non-residential developments such as Office, Manufacturing, Industrial, Warehouse) by Traffic Analysis Zone (TAZ) relative to the Regional Average are presented in Figure ES-1 and Figure ES-2 respectively.

Table ES-1 Screening Criteria for CEQA Transportation Analysis of Development Projects	
Type	Screening Criteria
Located in a VMT Efficient Area (see green areas in Figures ES-1 and ES-2)	<ul style="list-style-type: none"> Residential project located in an area where VMT/Capita is 15% or more below the base year Regional Average Office/Business and Industrial/Warehouse¹ projects located in an area where VMT/Employee is 15% or more below the base year Regional Average
Small Projects	<ul style="list-style-type: none"> Generates less than 110 daily unadjusted trip ends
Proximity to Transit ²	<ul style="list-style-type: none"> Located within ½ a mile of an existing or planned major transit stop or an existing stop along a high-quality transit corridor*
Local-Serving Retail	<ul style="list-style-type: none"> A qualifying local-serving retail use: < 50,000 square feet A retail project may also be defined as local-serving if a market study demonstrates that it is based on the size of its market area.

¹ Heavy-duty truck VMT would not be counted against Industrial/Warehouse projects, only employee-oriented commuter VMT.

² Situations where the project footprint is partially within the ½ buffer will be addressed by the City on case-by-case, project-by-project basis.



Affordable Housing	<ul style="list-style-type: none"> 100% affordable units based on City criteria
Mixed Use Project	<ul style="list-style-type: none"> Project's individual land uses should be compared to the screening criteria above (individually calculated).
Change of Use or Redevelopment Project	<ul style="list-style-type: none"> Proposed project's total project VMT is less than the existing land use's total VMT
<p>* Major transit stop means a rail transit station, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. A high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours").</p>	

Table ES-2	
VMT Thresholds of Significance for Development Projects	
Land Use Type	Threshold for Determination of a Significant VMT Impact¹
Residential	15% below Baseline Regional Average of VMT/Capita Regional VMT/Capita: 16.77 x .85 = 14.3 VMT/Capita
Office/Business Professional Employment	15% below Baseline Regional Average of VMT/Employee Regional VMT/Employee: 10.14 x .85 = 8.6 VMT/Employee
Industrial/Warehouse/Manufacturing Employment	15% below Baseline Regional Average of VMT/Employee Regional VMT/Employee: 10.14 x .85 = 8.6 VMT/Employee
Regional Retail	No net increase in total regional VMT
Regional Hotel/Motel	No net increase in total regional VMT
Regional Recreational	No net increase in total regional VMT
Regional Medical/Hospital	No net increase in total regional VMT
Regional Public Facilities	Does not contain regional public uses
Mixed Use	Analyze each land use individually per above categories and evaluate independently
Redevelopment	Apply the relevant threshold based on proposed land use
Notes:	
1. Projects that exceed these thresholds would have a significant impact under CEQA.	

Figure ES-1 Vehicle Miles Traveled per Capita by TAZ (Regional Average)

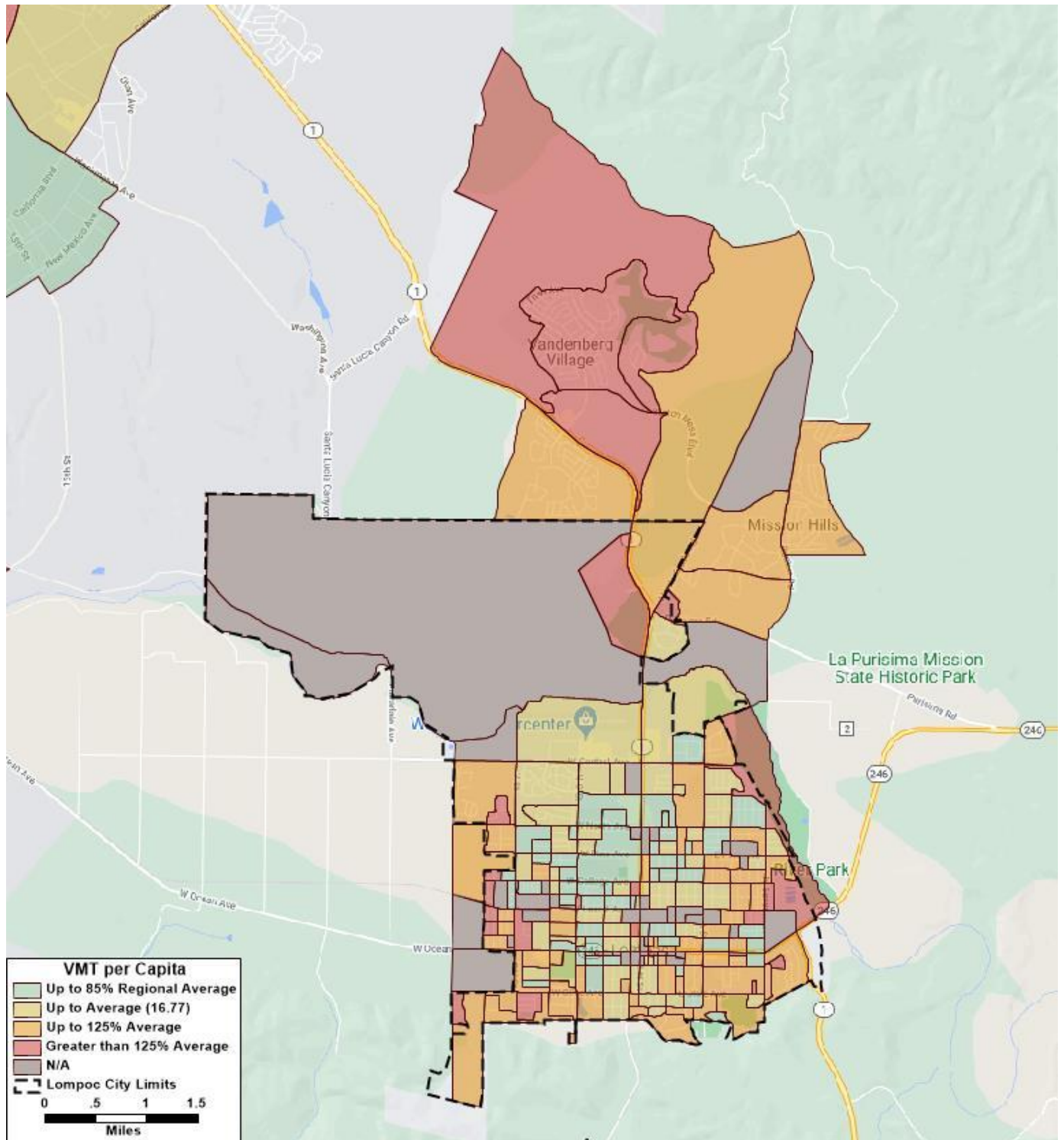
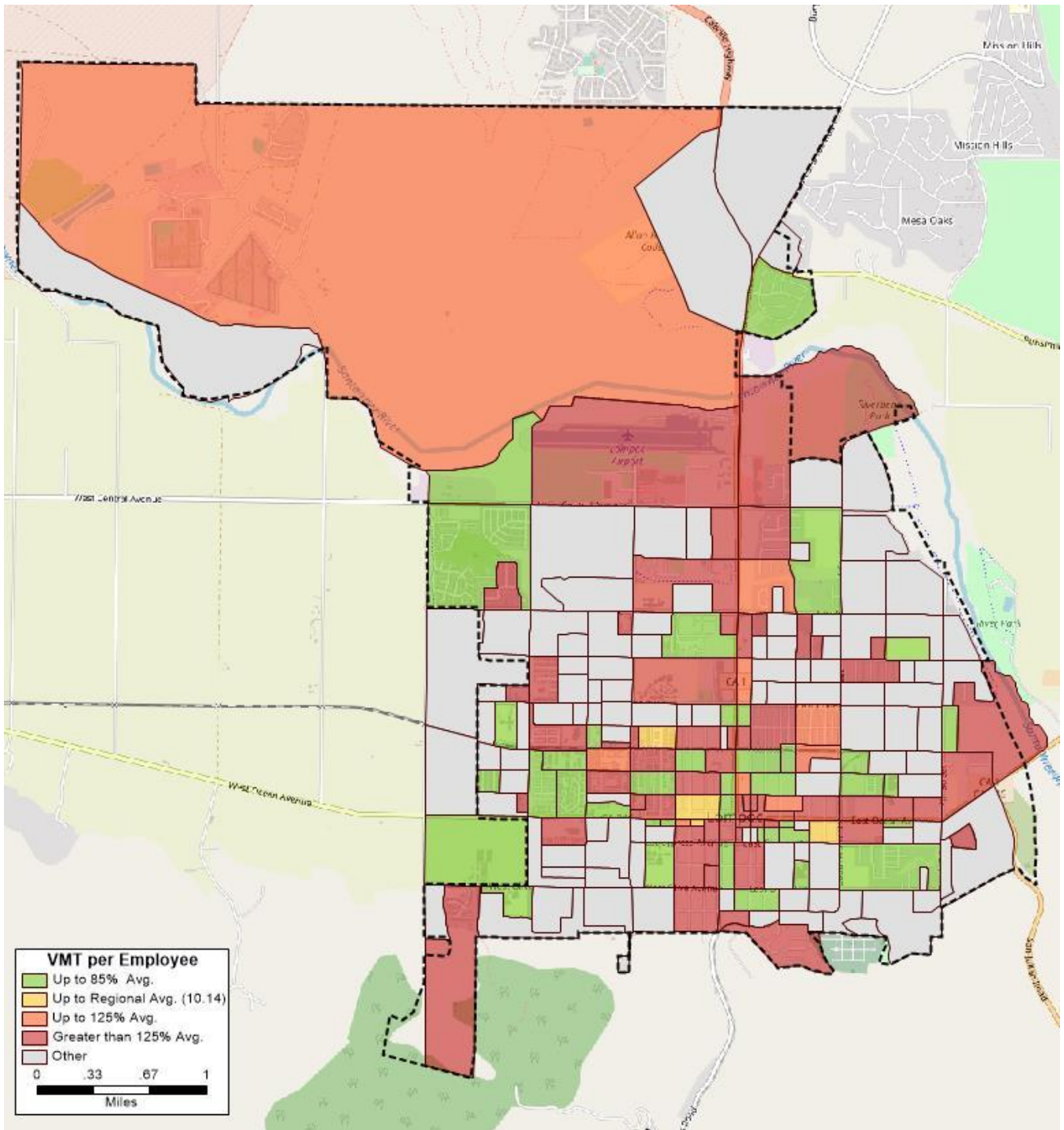


Figure ES-2 Vehicle Miles Traveled per Employee by TAZ (Regional Average)



BACKGROUND AND INTRODUCTION

In accordance with Senate Bill 743 (SB 743) and the resulting changes to the California Environmental Quality Act (CEQA) Guidelines published by the Natural Resources Agency, local agencies may no longer use measures of vehicle delay such as Level of Service (LOS) to quantify transportation impacts on the environment. While agencies may continue to maintain LOS standards and similar measures as a matter of local policy and for project analysis, Vehicle Miles Traveled (VMT) has been codified in the CEQA Guidelines as the most appropriate measure for measuring transportation impacts under CEQA. This change applies statewide as of July 1, 2020.

The change from LOS to VMT for CEQA purposes requires the City to revise its process and guidelines, which now must address VMT thresholds of significance, screening, and mitigation procedures.

The purpose of this memorandum is to:

- document guidance, options, resources, and analytical methodologies for evaluating VMT in the City of Lompoc; and,
- document the City's recommended VMT thresholds, project screening criteria, and mitigation strategies

The information and recommendations detailed in this memorandum draws heavily on technical guidance published by the Governor's Office of Planning and Research (OPR) and an evaluation of greenhouse gas and VMT mitigation strategies from the California Air Pollution Control Officers Association (CAPCOA). These documents are described in the following section and listed in the References section.

LEGISLATIVE BACKGROUND

Senate Bill (SB) 743 was signed into law in 2013, with the intent to better align California Environmental Quality Act (CEQA) practices with statewide sustainability goals related to efficient land use, greater multi-modal choices, and greenhouse gas reductions. The provisions of SB 743 become effective Statewide on July 1, 2020. Under SB 743, automobile delay, traditionally measured as level of service (LOS) will no longer be considered an environmental impact under CEQA. Instead, impacts will be determined by changes to VMT.

VMT measures the number and length of vehicle trips made on a daily basis:

$$\text{VMT} = \sum (\text{Volume (vehicles/day)} * \text{Segment Length (miles)})$$

(for all segments in the geographic area)

VMT is a systemic metric and is a useful indicator of overall land use and transportation efficiency, where the most efficient system is one that minimizes VMT by encouraging shorter vehicle trip lengths, more walking and biking, or increased carpooling and transit.

It should be noted that VMT is not a good indicator of congestion nor is it useful for identifying hot-spot locations or infrastructure deficiencies. Operational analyses will still be required by the City of Lompoc (called Local Traffic Study) to make General Plan consistency findings that will potentially inform project conditions of approval through the entitlement process. However, findings of a Local Traffic Study will not be used to inform CEQA traffic impacts.

Measuring VMT requires estimating or measuring the full length of vehicle trips by purpose, such as commutes, deliveries, or shopping trips that often cross between cities, counties, or states. For this reason, regional travel demand models, “big data,” and household travel surveys that are less limited by local agency boundaries are useful tools to estimate VMT for SB 743 applications.

GOVERNOR’S OFFICE OF PLANNING AND RESEARCH (OPR) TECHNICAL ADVISORY

In December 2018, OPR released its final Technical Advisory on Evaluating Transportation Impacts in CEQA. Generally, OPR recommends that a reduction of 15% or more in VMT should be the target. Below is a summary of OPR’s recommended VMT impact thresholds and methodologies for land use projects:

Residential (VMT/capita) – A proposed project exceeding a level of 15% below existing regional VMT per capita may indicate a significant transportation impact.

Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita. Proposed development referencing a threshold based on city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the number of units specified in the Sustainable Communities Strategy (SCS) for that city and should be consistent with the SCS.

Office (VMT/employee) - A proposed project exceeding a level of 15% below existing regional VMT per employee may indicate a significant transportation impact.

Retail (net VMT) - A proposed project that results in a net increase in total area VMT may indicate a significant transportation impact.

Mixed-Use - Evaluate each component independently using above thresholds.

Redevelopment Projects - Measured based on net change in VMT for total area.

Infrastructure Projects (net VMT) - A proposed project that results in a net increase in total area VMT may indicate a significant transportation impact.

The OPR recommended thresholds for residential and office are expressed on a per capita or per employee basis. This essentially normalizes for development size. For example, a 10,000 sq.ft. office development can yield the same VMT per employee result as a 100,000 sq.ft. office development. Though the absolute amount of VMT and traffic generated by the 100,000 sq.ft. office project will be significantly greater, it would be considered equally as efficient as the 10,000 sq.ft. development. Project size is partially addressed through OPR’s screening thresholds described below.

OPR RECOMMENDED SCREENING THRESHOLDS

OPR’s Technical Advisory lists the following screening thresholds for land use projects. OPR’s Technical Advisory suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing as described below.

- Projects that are consistent with the Sustainable Communities Strategy (SCS) or General Plan and generate or attract fewer than 110 daily trips (consistent with trip generation associated with projects eligible for a Categorical Exemption under CEQA).
- Map-based screening for residential and office projects located in low VMT areas, and incorporate similar features (density, mix of uses, transit accessibility).
- Certain projects within ½ mile of an existing major transit stop³ or an existing stop along a high-quality transit corridor⁴. However, this will not apply if information indicates that the project will still generate high levels of VMT.
- Affordable Housing Development in infill locations.
- Locally serving retail projects, typically less than 50,000 square feet.

³ “major transit stop” - A major transit stop is a "site containing an existing rail, a ferry terminal served by bus or rail transit service, or intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during morning and evening peak hour commute". (OPR 2018)

⁴ Pub. Resources Code, § 21155 a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

CALTRANS VMT-FOCUSED TRANSPORTATION IMPACT STUDY GUIDELINES

Caltrans has published an update of their Transportation Impact Study Guidelines (TISG, May 2020). The Caltrans' TISG is intended for use in preparing a transportation impact analysis of land use projects or plans that may impact or affect the State Highway System.

The TISG heavily references OPR's Technical Advisory as a basis for its guidance. The TISG recommends use of OPR's recommended thresholds for land use projects (15% below existing city or regional VMT per capita or per employee). As each lead agency develops and adopts its own VMT thresholds for land use projects, Caltrans will review them for consistency with OPR's recommendations, and with the state's GHG emissions reduction targets and the California Air Resources Board Scoping Plan.

Caltrans identifies a possible mitigation framework for projects found to have a potentially significant impact on VMT. These include the following programmatic measures:

- Impact fee programs that contain a demonstrated nexus and proportionality between a fee and capital projects that result in VMT reduction;
- VMT mitigation bank programs; and,
- VMT mitigation exchange programs.

Caltrans also indicates that a future update to the TISG will include the basis for requesting transportation impact analysis that is not based on VMT (including multimodal conflict/access management issues).

CALTRANS DRAFT TRANSPORTATION ANALYSIS UNDER CEQA (TAC) AND TRANSPORTATION ANALYSIS FRAMEWORK (TAF)

Caltrans has also published additional documents related to SB 743 implementation. The draft Transportation Analysis Under CEQA (TAC) identifies the State's preferred approaches for analyzing VMT under CEQA for projects on the State Highway System. The draft Transportation Analysis Framework (TAF) is for transportation projects on the state highway system and addresses how to perform induced travel analysis. The TAF refers to OPR's Technical Advisory for the list of highway projects "that would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should not require an induced travel analysis". TAC Screening:

"The use of VMT as the CEQA transportation metric will, for the most part, impact only capacity increasing projects. For other types of transportation projects, CEQA does not require a VMT impacts analysis beyond the screening process. Generally, there are two reasons such an analysis is not warranted. The first is because the type of project is expected to decrease or have no impact on VMT. The second is because the project's VMT impacts have already been analyzed and, when necessary, mitigated to the extent feasible in an earlier CEQA document; thus, the analysis may "tier" from or otherwise rely on that earlier analysis."

ANALYSIS PROCEDURES

To develop the City of Lompoc VMT Thresholds the primary data and modeling resource is the Santa Barbara County Association of Governments Regional Travel Demand Model (SBCAG RTDM)⁵.

Project-level VMT was assessed against countywide, regional, or citywide averages, per capita or per employee depending on the project type. The City examined all three of these geographies for establishing a baseline average that reflects the travel behavior of its' residents and employees. The baseline average will be the measuring stick that all future projects will be compared against.

SBCAG REGIONAL TRAVEL DEMAND MODEL (RTDM)

The regional SBCAG RTDM was utilized to estimate trip-based Work and Residential Baseline VMT for the incorporated areas of the City. The SBCAG model is a traditional 4-Step travel demand model that runs in the TransCAD software platform. The model generates trips based on the land uses and where people will live, work, study and shop, taking into account forecasted population growth. The model generates and tracks all trip types by all modes originating or ending in each jurisdiction within Santa Barbara County (considered "internal" trips), as well as all trips (not separated by trip purpose) from or into Ventura and San Luis Obispo Counties (considered "External" trips). The use of the SBCAG RTDM for evaluation of VMT is limited to the boundary of the three counties.

The base year 2010 model was utilized to estimate baseline VMT for the City of Lompoc⁶. The SBCAG RTDM produces trips by different trip purposes and modes and provides VMT as an output. To estimate trips associated with Residential VMT, all Home-Based vehicular trips (HBx7) internal to Santa Barbara County, and external trips between Santa Barbara County and San Luis Obispo and Ventura Counties ("IX" trips in the below table), were selected for evaluation of VMT per capita. To estimate trips associated with Work VMT, only Home-Base-Work (HBW) vehicular trips and "IX" trips were selected for evaluation. These baseline VMT estimates should be updated every 4-5 years, approximately concurrent with an update to the Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) and Santa Barbara County Association of Governments travel demand model. The SBCAG "Fast Forward 2040" is the current RTP/SCS, adopted in August 2017.

⁵ Given that Vandenberg Space Force Base is a major employer in the Lompoc area the US Census's Longitudinal Employer-Housing Dynamics (LEHD) data, which excludes military jobs, was not utilized to validate the SBCAG TDM for Lompoc. However, the favorable correspondence between the SBCAG model's HBW full-trip length VMT estimate and the LEHD based HBW VMT estimates for the Cities of Goleta and Santa Maria which are not significantly influenced by a large nearby military employer suggests that the SBCAG model is the appropriate analysis tool for VMT Threshold development.

⁶ The 2010 Baseline model was the most update to date baseline available at the time of this report. Although some growth has occurred in Lompoc since 2010, traffic and circulation patterns and origin-destination trip distributions have remained stable. Future updates of the SBCAG RTDM will provide an opportunity to update City thresholds.

⁷ HBx refers to any "Home based" trip, including work, shop, K-12 school, college, and other.



PROPOSED VMT THRESHOLDS OF SIGNIFICANCE

RESIDENTIAL AND OFFICE PROJECTS

Consistent with the OPR Technical Advisory, the City of Lompoc assessed land development projects according to the primary proposed land use type, as follows:

Residential VMT – Establish baseline VMT and threshold on a per capita basis. “Residential” uses include, but are not limited to, single-family, multi-family, and mobile homes.

Work VMT – Establish baseline VMT and threshold on a per employee basis. “Work” uses include, but are not limited to, office, office parks, light industrial, industrial, warehousing, manufacturing, and business parks.

The proposed thresholds are 85 percent of the existing baseline VMT per land use unit, as calculated within the City of Lompoc for work (office, commercial, manufacturing), and residential uses. These recommendations are consistent with OPR guidance.

OTHER PROJECT TYPES

Retail - The recommended threshold for retail projects is any increase in total VMT that occurs as a result of the project. The OPR technical advisory gives 50,000 square feet for an individual retail establishment as a general guideline to distinguishing local from regional serving retail. Projects consisting of multiple spaces totaling more than 50,000 square feet might also be considered local serving retail if no single establishment is larger. For example, neighborhood centers⁸ -convenience oriented centers of up to 125,000 square feet leasable area and typically anchored by a supermarket -could be considered local-serving.

Medical – While calculation of baseline VMT rates for medical land uses is possible using the model outputs, it is recommended that medical projects be analyzed in terms of net VMT impacts in a manner similar to retail projects. As with retail, providing additional opportunities for healthcare may reduce the lengths of trips made for this purpose. By this line of reasoning, most freestanding clinics, medical practices, and nursing homes could be assumed less than significant with respect to VMT impacts. Larger or regional-serving facilities such as hospitals would likely require an environmental document that considers employee and patient VMT separately.

Industrial Projects – The CEQA guidelines specify that the VMT to be considered when analyzing transportation impacts is passenger vehicle VMT. Heavy-duty truck trips (3+ axles), often the predominant type at industrial facilities, would not come into play as a transportation impact (although they would be considered under noise or air quality). Instead, industrial land uses may

⁸ International Council of Shopping Centers, U.S Shopping Center Classification and Characteristics. (January 2017), https://www.icsc.com/uploads/research/general/US_CENTER_CLASSIFICATION.pdf.

have to be analyzed on a case-by-case basis to determine the net light-duty VMT impacts of proposed projects. If employee travel is the predominant source of light duty trips at a facility, this component might be assessed against the equivalent VMT per employee threshold for office land uses.

Hotel / Motel Projects – For hotel/motel projects, the recommended threshold would be similar for regional-serving retail projects. Any increase in total VMT (i.e., net positive VMT change) that occurs as a result of the project would trigger a VMT impact. Determination of whether a given hotel/motel project is locally- or regionally-serving would be determined by the lead agency on a case-by-case basis.

Recreational Projects – The recommended threshold for recreational projects would be similar for regional-serving retail projects. Any increase in total VMT (i.e., net positive VMT change) that occurs as a result of the project would trigger a VMT impact.

Mixed Use Projects - For mixed use projects, OPR recommends either analyzing each component of the proposed project separately or focusing on the predominant land use.

Infrastructure Projects - The recommended threshold for vehicle capacity increasing projects is any increase in total VMT that occurs as a result of the project. The OPR technical advisory lists many transportation infrastructure project types as being VMT neutral (see Screening Procedures).

Land Use Plans - The recommended methodology for conducting VMT assessments for land use plans is to compare the existing VMT per capita and/or VMT per employee for the region with the expected horizon year VMT per capita and/or VMT per employee for the land use plan of the jurisdiction. If there is a net increase in the VMT metric under horizon year conditions, then the project will have a significant impact.

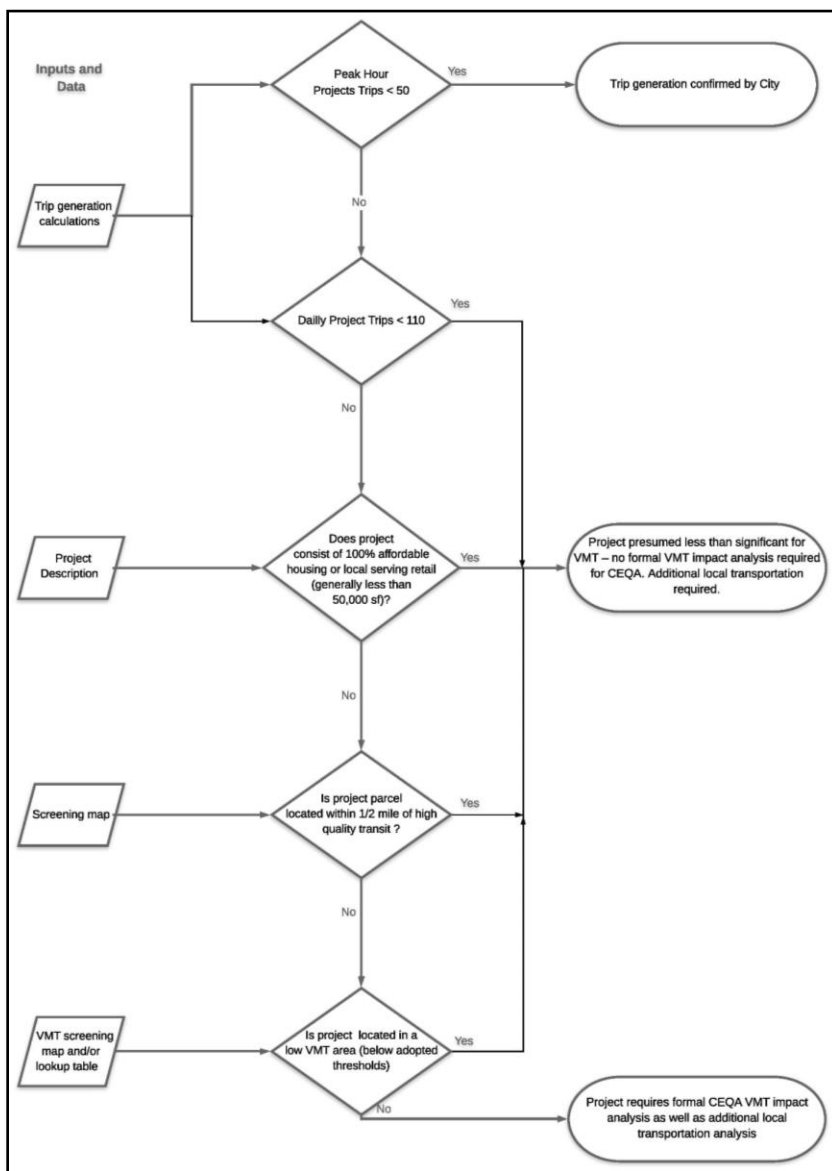
SCREENING PROCEDURES AND TRAFFIC IMPACT ANALYSIS GUIDELINES

Screening procedures play an important part in streamlining project analysis. First, projects may be presumed to have less than significant VMT impacts due to size, proximity to high quality transit, and housing affordability. Second, projects may be screened according to location. Projects located in areas that have been shown to generate VMT below the selected threshold of significance may be presumed to have less than significant impacts and no further analysis or mitigation would be required.

Given that the City of Lompoc will retain its existing LOS standards for consistency with the current General Plan, projects may be screened out of requiring a VMT analysis for CEQA purposes but may still require operational determinations to meet local requirements. These analyses, which will occur outside of CEQA, can continue to inform conditions of project approval by the City.

Figure 1 illustrates how the screening process would work in conjunction with a local transportation analysis desired by the City. Projects with fewer than 50 peak hour trips per day would fall under the recommended screening criterion for VMT impacts and no formal VMT analysis would be required for CEQA. Projects generating between 100 (50 for residential) but fewer than 110 trips per day would not need to prepare VMT analysis for CEQA but would need to prepare a local transportation analysis covering topics such as trip distribution, assignment, LOS, and site distance. Projects expected to generate more than 110 daily trips would need to be checked against the remaining VMT screening criteria to see if a formal VMT analysis would be required in addition to the more extensive local transportation analysis. These additional VMT screening criteria are also described below.

Figure 1. Proposed Screening Process for Transportation Impacts



SMALL OR INFILL PROJECTS

OPR advises that **projects generating fewer than 110 trips per day** could be presumed to have less than significant VMT impacts. **Table 4** shows the maximum project size that would correspond to this threshold based on average ITE trip generation rates for selected land uses. This criterion could be applied in conjunction with the City’s current guidelines that require only a trip generation memorandum for smaller projects.

TABLE 4 PROJECT SIZE THRESHOLDS FOR VMT SCREENING
(GENERATION OF 110 OR FEWER DAILY TRIPS)

LAND USE	ITE CODE	SIZE THRESHOLD	DAILY TRIP GENERATION
SINGLE FAMILY RESIDENTIAL	210	11 units	104
MULTIFAMILY RESIDENTIAL - LOW RISE	220	15 units	110
MULTIFAMILY RESIDENTIAL - MID RISE	221	20.0 units	109
MULTIFAMILY RESIDENTIAL - HIGH RISE	222	24 units	107
MID-RISE RESIDENTIAL WITH 1ST FLOOR COMMERCIAL	231	32 units	110
SMALL OFFICE BUILDING	712	6,800 square feet	110
SINGLE TENANT OFFICE BLDG.	715	9,750 square feet	110

Source: ITE Trip Generation 10th Edition (<https://itetripngen.org/>)

LOW INCOME HOUSING

As one of many strategies to address California’s housing crisis, OPR advises that **residential projects consisting of 100 percent affordable units** may be presumed to have less than significant VMT impacts.

LOCAL SERVING RETAIL

The OPR technical guidance recommends that retail projects be analyzed in terms of net VMT impacts (i.e. total VMT that would occur with and without the project). By increasing retail opportunities closer to homes and workplaces, local serving retail may decrease overall VMT if it substitutes for longer trips. OPR advises that projects of 50,000 or fewer square feet for an individual retail establishment may be used to distinguish local serving retail from more regional establishments that draw customers from greater distances.

PROXIMITY TO TRANSIT

Section 15064.3 of the CEQA Guidelines specifies that residential or office **projects within one-half mile of an existing major transit station or stop along an existing high-quality transit corridor** can be presumed to have a less than significant transportation impact. According to OPR guidance and Public Resources Code § 21064.3, major transit stops are defined as a site containing an existing rail transit station or the intersection of at least two bus routes with a combined frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. High-quality transit corridors are defined as having fixed route bus service with service intervals no longer than 15 minutes during the peak commute hours. Applicable transit services operating in the City of Lompoc are described below.

City of Lompoc Transit (COLT) & Wine Country Express COLT provides both fixed-route and demand-response service in the Lompoc area, including the unincorporated areas of Mission Hills and Vandenberg Village, utilizing a fleet of 13 vehicles. COLT provides service Monday through Friday between the hours of 6:30 AM and 7:00 PM, and on Saturdays between the hours of 9:00 AM and 5:00 PM. The City of Lompoc manages the transit system and contracts with a private operator for operation of the service. As a public entity that provides non-commuter, fixed-route transit service, COLT is required by the ADA to provide complementary paratransit service for persons who are unable to use the fixed-route service. COLT provides its own complementary paratransit service.

The City of Lompoc also provides the Santa Barbara Shuttle and the Wine Country Express. The Santa Barbara Shuttle operates on Tuesdays and Thursdays, departing at 8:30 AM from the Mission Plaza Transit Center and going to the Santa Barbara MTD Transit Center. The Wine Country Express provides service connecting the City of Lompoc to the Santa Ynez Valley. This service is a cooperative service provided by the Cities of Lompoc, Buellton, and Solvang, and Santa Barbara County. Wine Country Express runs five days a week, three times a day.

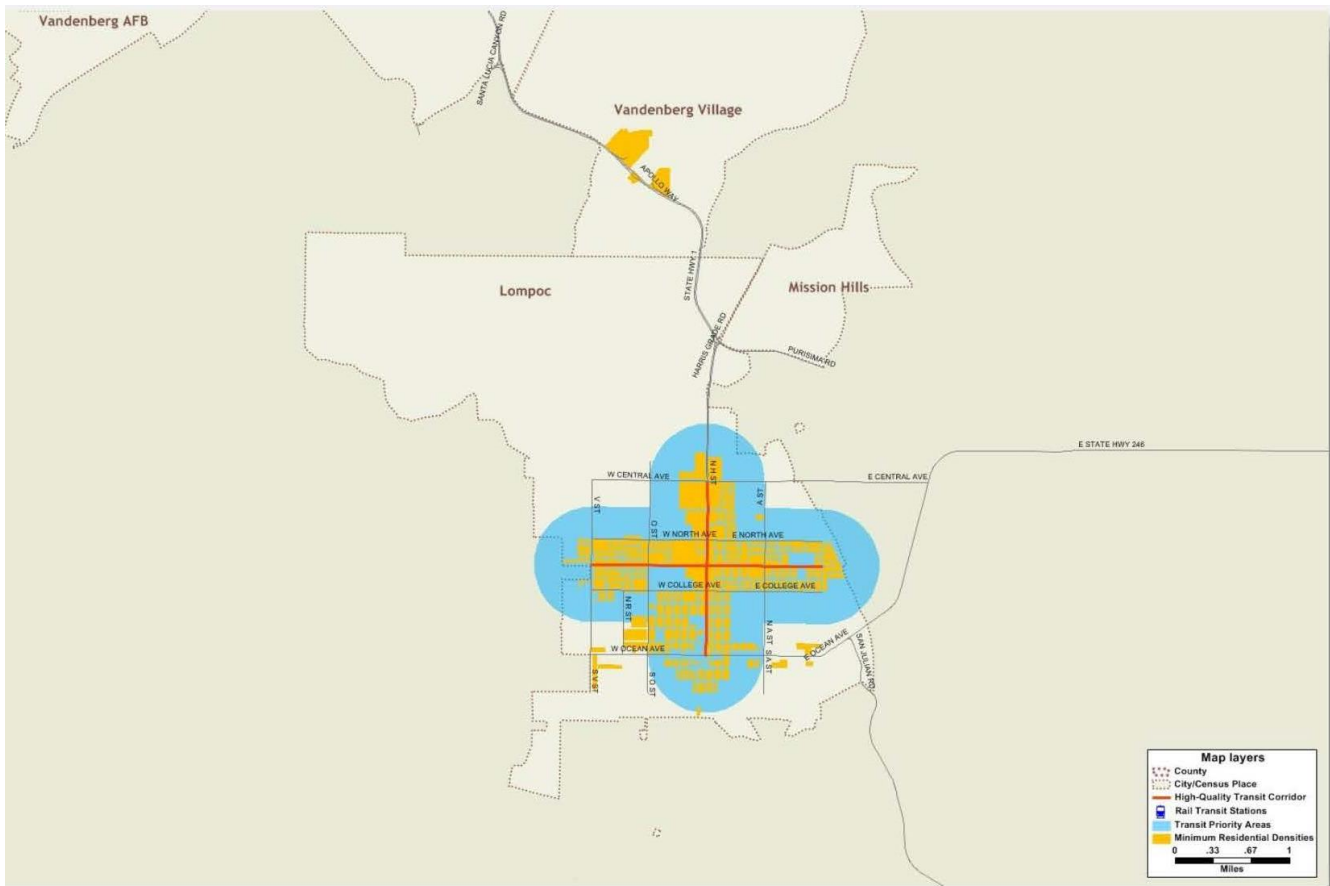
Clean Air Express Clean Air Express is a subscription fixed-route commuter service from Lompoc, Santa Maria, Buellton, and Solvang to the South Coast. The Clean Air Express operates Monday through Friday with thirteen southbound trips in the morning and thirteen northbound trips in the late afternoon. Bi-directional Saturday service was recently implemented between Buellton, Solvang, and the South Coast. The Clean Air Express has been administered by the Santa Barbara County Air Pollution Control District, SBCAG, the City of Lompoc, and the City of Santa Maria. In November 2012, administration of the service was transferred from the City of Santa Maria back to the City of Lompoc. The Clean Air Express is funded solely by Measure A and SBCAG is the Clean Air Express policy board.

Transit Priority Areas and High-Quality Transit Corridors No areas in the City of Lompoc currently have the required bus headways or rail stations to qualify as transit priority areas. Provided they meet all other requirements, projects with the minimum residential densities within these areas can qualify as “transit priority projects” as defined in Public Resources Code Section 21155(b) that would be eligible for streamlined environmental review under CEQA. At such time as future transit

enhancements increase bus frequencies sufficiently to meet the definition of “major transit stop” or “high-quality transit corridor” and requisite, additional programmatic environmental review has been completed, areas within the City of Lompoc can become eligible for consideration as planning and transit priority areas. Areas within the vicinity of rail stations meet the definition of transit priority areas and improvements to rail services will not result in changes.

Figure 2 shows parcels with at least 25 percent of their area falling within one-half mile of a future planning and transit priority areas (i.e., passenger rail transit station and/or a high-quality transit corridor). Office or residential projects located within these parcels may be presumed to have less than significant VMT impacts. The City may wish to set additional criteria such as provision or availability of active transportation infrastructure for application of this screening option.

Figure 2. Half Mile Buffer of Potential Future Lompoc (COLT) Transit Priority Area



INFRASTRUCTURE PROJECTS

Infrastructure projects that **would not likely lead to a substantial or measurable increase in vehicle travel**, and therefore generally should not require an induced travel analysis, include⁹:

- Rehabilitation, maintenance, replacement, safety, and repair projects including ITS 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 "refuge area," 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
- Intersection channelization (installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as turn pockets, turn lanes, or emergency breakdown 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

⁹ Final Technical Advisory on Evaluating Transportation Impacts in CEQA (Office of Planning and Research, December 2018)

- 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
- 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
- Installation of publicly available alternative fuel/charging infrastructure
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas

PROJECT LOCATION SCREENING

The OPR technical guidance discusses screening of residential and office projects based on location. Residential and office projects that locate in areas with low VMT, and that incorporate similar features will also tend to generate similarly low VMT. Maps showing areas of the City that exhibit “low” VMT characteristics can be used to screen residential and office projects from needing to prepare a CEQA VMT analysis.

The base year 2010 SBCAG Regional Travel Demand Model (RTDM) was utilized to estimate baseline VMT for the City of Lompoc. The SBCAG RTDM produces trips by different trip purposes and modes and provides VMT as an output. To estimate trips associated with Residential VMT, all Home-Based vehicular trips (HBx) internal to Santa Barbara County, and external trips between Santa Barbara County and San Luis Obispo and Ventura Counties (“IX” trips in the below table), were selected for evaluation of VMT per capita. To estimate trips associated with Work VMT, only Home-Base-Work (HBW) vehicular trips and “IX” trips will be selected for evaluation.

The steps taken using the SBCAG RTDM to estimate trip-based “work-related” and “residential-related” baseline VMT for the City of Lompoc based on following three different baseline averages: 1) Countywide; 2) Regional; and 3) Citywide is described below.

Selection of which baseline average best reflects the degree of geographic screening allowed for development is left to the City’s discretion.

Calculation Steps for Home-based VMT per Capita

1. Combine daily drive alone and shared ride person trip tables (PA format) from mode choice step, including home-based work (HBW), home-based other (HBO), home-based school (HBSc) and home-based shop (HBS) trip purposes for the peak and off-peak periods (i.e.,

accounting for daily travel). Adjust the shared ride person trip tables to account for vehicle occupancy using factor published in the model documentation.

2. Multiply daily home-based trip ends by matrix of shortest path distances to arrive at daily VMT by TAZ. Fill a table with matrix row and column sums for home-based PA trips and VMT. Intrazonal distances have been estimated as the average of half the distance nearest three neighboring TAZs.
3. Home-based VMT per capita by TAZ is calculated as the row sum (production zone) of VMT divided by population.
4. Average home-based VMT per capita for a geographic area is calculated as the sum of production zone VMT divided by the sum of population for the area (county, city, or region). Some TAZs are excluded from the calculation (see below).

TAZs with non-zero population but zero VMT were excluded from VMT per capita calculations, as were TAZs with high population and very low VMT. These TAZs represent institutional populations or other unusual conditions where trip generation is driven by land use rather than population. The TAZs removed from the calculations of home-based VMT per capita averages are listed in **Table 5**.

TABLE 5: TAZS EXCLUDED FROM COUNTYWIDE, CITYWIDE, AND REGIONAL CALCULATIONS

TAZ	POP	HH	TRIP ENDS	VMT	VMT PER POP	NOTES ON LAND USE
20035	4673	15	0	0	0	UC Santa Barbara
20162	1307	4	11.17656	63.164284	0.048328	Isla Vista Care Home
20106	1108	41	104.083878	518.336243	0.467812	County Jail
10313	271	1	6.552792	31.271507	0.115393	SB Homeless Shelter
10410	225	6	40.524765	182.789688	0.812399	PATH Homeless Shelter
20093	151	8	23.690413	117.378639	0.777342	Buena Vista Care
30148	147	0	0	0	0	Juvenile Hall
114707	120	0	0	0	0	Chamberlin Ranch
40303	90	0	0	0	0	Medical Center
20080	33	0	0	0	0	Hospital
40019	16	0	0	0	0	Church
40019	16	0	0	0	0	Church
20015	11	0	0	0	0	Non-residential use
10286	9	1	0	0	0	
10370	8	2	0	0	0	
30146	8	3	0	0	0	
40158	8	2	0	0	0	
126402	8	0	0	0	0	



10279	6	1	0	0	0	
10345	5	0	0	0	0	
40276	5	0	0	0	0	
20019	4	1	0	0	0	
30170	4	1	0	0	0	
10006	3	0	0	0	0	
10371	3	1	0	0	0	
30020	3	1	0	0	0	
40123	3	1	0	0	0	
40223	3	2	0	0	0	
102707	3	2	0	0	0	winery
10275	2	0	0	0	0	
10300	2	0	0	0	0	
10374	2	0	0	0	0	
40198	2	1	0	0	0	Non-residential use
40198	2	1	0	0	0	
40248	2	1	0	0	0	Non-residential use
40248	2	1	0	0	0	
10125	1	1	0	0	0	

BASELINE AVERAGE GEOGRAPHIES

The extents of the countywide, citywide, and “regional” TAZs for home-based trip purposes are shown in **Figures 3-5**. The extents of the countywide, citywide, and “regional” TAZs for the home-based-work trip purpose are shown in **Figures 6-8**.

AVERAGE VMT RATES PER CAPITA

Average daily VMT rates per capita calculated for the three geographies and using the methodology described above are shown below in **Table 6**. Maps showing the VMT rates by TAZ are presented as **Figures 9-11**. Average VMT rates for the City and Region have been calculated with and without TAZ 40030, the location of the Federal Correctional Institution. Areas where VMT rates are denoted in green (exhibit up to 85%) would be screened from having to require a VMT analysis.

TABLE 6. HOME-BASED VMT PER CAPITA – DAILY AVERAGE RATES BY GEOGRAPHY

GEOGRAPHY	AVG. DAILY VMT/CAPITA	AVG. DAILY VMT/CAPITA (TAZ 40030 EXCLUDED)
COUNTY	12.39	--
CITY	14.98	15.87
REGION	15.99	16.77

Calculation Steps: Home Based Work VMT per Employee

1. Combine daily drive alone and shared ride person trip tables (PA format) from mode choice step, including home-based work (HBW) trip purposes for the peak and off-peak periods (i.e., accounting for daily travel). Adjust the shared ride person trip tables to account for vehicle occupancy using factor published in the model documentation.
2. Multiply daily HBW trip ends by matrix of shortest path distances to arrive at daily VMT by TAZ. Fill a table with matrix row and column sums for home-based PA trips and VMT. Intrazonal distances have been estimated as the average of half the distance nearest three neighboring TAZs.
3. HBW VMT per employee by TAZ is calculated as the column sum (attraction zone) of VMT divided by employment in that zone.
4. Average HBW VMT per employee for a geographic area is calculated as the sum of attraction zone VMT divided by the sum of employment for the area (county, city, or region). Some TAZs are excluded from the calculation (see below).

TAZs with nonzero employment but zero attraction VMT were excluded from VMT per capita calculations, as were TAZs with high employment and very low VMT (less than 1 VMT per employee). These TAZs represent special generators or other unusual conditions where trip generation is driven by land use rather than employment. The query used to flag these TAZs was:

$$\text{VMT_EMP} = 0 \text{ and Total Employment} > 0 \text{ OR } (\text{VMT_EMP} > 200)$$

The TAZs with removed from the calculations of home-based VMT per capita averages are listed in **Table 7**.

**TABLE 7. TAZS REMOVED FROM HBW CALCULATIONS**

ID	EMP	VMT	VMT/EMP	ID	EMP	VMT	VMT/EMP
30132	3	9770	3257	10199	15	0	0
40222	1	2848	2848	10203	1	0	0
11439	12	29440	2453	10206	5	0	0
10037	5	9959	1992	10212	2	0	0
30137	2	3099	1550	10217	10	0	0
10214	6	7245	1208	10234	1	0	0
10132	1	1085	1085	10236	13	0	0
40224	3	3247	1082	10237	14	0	0
30169	7	6312	902	10238	1	0	0
40047	1	875	875	10239	1	0	0
40073	1	834	834	10243	1	0	0
30180	7	4697	671	10247	1	0	0
10330	3	1938	646	10251	2	0	0
40004	6	3663	610	10255	4	0	0
40223	9	5299	589	10256	3	0	0
30043	1	554	554	10257	2	0	0
10002	8	3682	460	10265	4	0	0
30110	13	5130	395	10277	1	0	0
125904	9	3416	380	10289	4	0	0
30002	7	2483	355	10290	3	0	0
40306	7	2350	336	10324	1	0	0
10271	2	665	332	10325	3	0	0
10067	11	3228	293	10326	12	0	0
30009	9	2141	238	10389	2	0	0
40137	3	703	234	10393	1	0	0
30069	45	9701	216	10412	1	0	0
20088	3	620	207	10420	29	0	0
10026	22	0	0	10446	5	0	0
10124	12	0	0	20002	530	0	0
10134	3	0	0	20005	91	0	0
10162	3	0	0	20016	15	0	0
10169	14	0	0	20030	161	0	0
10171	7	0	0	20038	11	0	0
10173	4	0	0	20044	125	0	0
10174	4	0	0	20047	35	0	0

**TABLE 7. TAZS REMOVED FROM HBW CALCULATIONS**

ID	EMP	VMT	VMT/EMP	ID	EMP	VMT	VMT/EMP
10177	12	0	0	20061	1	0	0
10186	11	0	0	20065	85	0	0
20070	3	0	0	40078	1	0	0
20090	6	0	0	40105	1	0	0
20144	2	0	0	40145	1	0	0
30012	2	0	0	40147	4	0	0
30019	4	0	0	40148	20	0	0
30028	2	0	0	40150	2	0	0
30053	2	0	0	40169	25	0	0
30059	1	0	0	40181	4	0	0
30064	201	0	0	40192	4	0	0
30080	3	0	0	40194	3	0	0
30124	11	0	0	40197	7	0	0
30125	10	0	0	40209	2	0	0
30138	101	0	0	40225	3	0	0
30146	1	0	0	40231	1	0	0
30148	193	0	0	40235	1	0	0
30149	74	0	0	40236	6	0	0
30151	14	0	0	40245	1	0	0
30154	3	0	0	40246	2	0	0
30159	11	0	0	40250	2	0	0
30161	24	0	0	40251	10	0	0
30165	9	0	0	40259	1	0	0
30171	10	0	0	40262	2	0	0
30175	5	0	0	40274	207	0	0
30186	4	0	0	40278	5	0	0
30187	27	0	0	40283	5	0	0
30190	2	0	0	40286	2	0	0
40021	113	0	0	40292	14	0	0
40022	1	0	0	40311	1	0	0
40023	1	0	0	40316	3	0	0
40041	2	0	0	40317	23	0	0
40045	6	0	0	40318	4	0	0
40053	2	0	0	40321	8	0	0
40062	4	0	0	40330	2	0	0



TABLE 7. TAZS REMOVED FROM HBW CALCULATIONS

ID	EMP	VMT	VMT/EMP	ID	EMP	VMT	VMT/EMP
40065	1	0	0	40331	3	0	0
40066	22	0	0	100102	57	0	0
40067	4	0	0	100504	20	0	0

AVERAGE VMT RATES PER EMPLOYEE

Average daily VMT rates per employee calculated for the three geographies and previously described methodology are shown provided in **Table 8**. Maps showing the VMT rates by TAZ are presented as **Figures 12-14**. Areas where VMT rates are denoted in green (exhibit up to 85%) would be screened from having to require a VMT analysis.

TABLE 8. HOME-BASED WORK VMT PER EMPLOYEE- AVERAGE DAILY RATES BY GEOGRAPHY

GEOGRAPHY	AVG. DAILY VMT/EMPLOYEE
COUNTY	12.2
CITY	10.18
REGION	10.14

CITY OF LOMPOC PROPOSED VMT THRESHOLDS AND SCREENING CRITERIA

Based on staff review of OPR’s guidance, the City of Lompoc’s proposed screening criteria are listed in **Table 9**. The City’s proposed VMT thresholds are listed in **Table 10**.

Table 9 Screening Criteria for CEQA Transportation Analysis of Development Projects	
Type	Screening Criteria
Located in a VMT Efficient Area (see green areas in Figures 11 and 14)	<ul style="list-style-type: none"> Residential project located in an area where VMT/Capita is 15% or more below the base year Regional Average Office/Business and Industrial/Warehouse¹⁰ projects located in an area where VMT/Employee is 15% or more below the base year Regional Average
Small Projects	<ul style="list-style-type: none"> Generates less than 110 daily unadjusted trips ends

¹⁰ Heavy-duty truck VMT would not be counted against Industrial/Warehouse projects, only employee-oriented commuter VMT.

Proximity to Transit ¹¹	<ul style="list-style-type: none"> Located within ½ a mile of an existing or planned major transit stop or an existing stop along a high-quality transit corridor*
Local-Serving Retail	<ul style="list-style-type: none"> A qualifying local-serving retail use: < 50,000 square feet A retail project may also be defined as local-serving if a market study demonstrates that it is based on the size of its market area.
Affordable Housing	<ul style="list-style-type: none"> 100% affordable units based on City criteria
Mixed Use Project	<ul style="list-style-type: none"> Project's individual land uses should be compared to the screening criteria above (individually calculated).
Change of Use or Redevelopment Project	<ul style="list-style-type: none"> Proposed project's total project VMT is less than the existing land use's total VMT
<p>* Major transit stop means a rail transit station, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. A high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours").</p>	

Table 10	
VMT Thresholds of Significance for Development Projects	
Land Use Type	Threshold for Determination of a Significant VMT Impact¹
Residential	15% below Baseline Regional Average of VMT/Capita Regional VMT/Capita: 16.77 x .85 = 14.3 VMT/Capita
Office/Business Professional Employment	15% below Baseline Regional Average of VMT/Employee Regional VMT/Employee: 10.14 x .85 = 8.6 VMT/Employee
Industrial/Warehouse/Manufacturing Employment	15% below Baseline Regional Average of VMT/Employee Regional VMT/Employee: 10.14 x .85 = 8.6 VMT/Employee
Regional Retail	No net increase in total regional VMT
Regional Hotel/Motel	No net increase in total regional VMT
Regional Recreational	No net increase in total regional VMT
Regional Medical/Hospital	No net increase in total regional VMT
Regional Public Facilities	Does not contain regional public uses
Mixed Use	Analyze each land use individually per above categories and evaluated independently
Redevelopment	Apply the relevant threshold based on proposed land use
Notes:	
1. Projects that exceed these thresholds would have a significant impact under CEQA.	

¹¹ Situations where the project footprint is partially within the ½ mile buffer will be addressed by the City on case-by-case, project-by-project basis.

FIGURE 3. TAZS FOR COUNTYWIDE AVERAGE HOME-BASED VMT

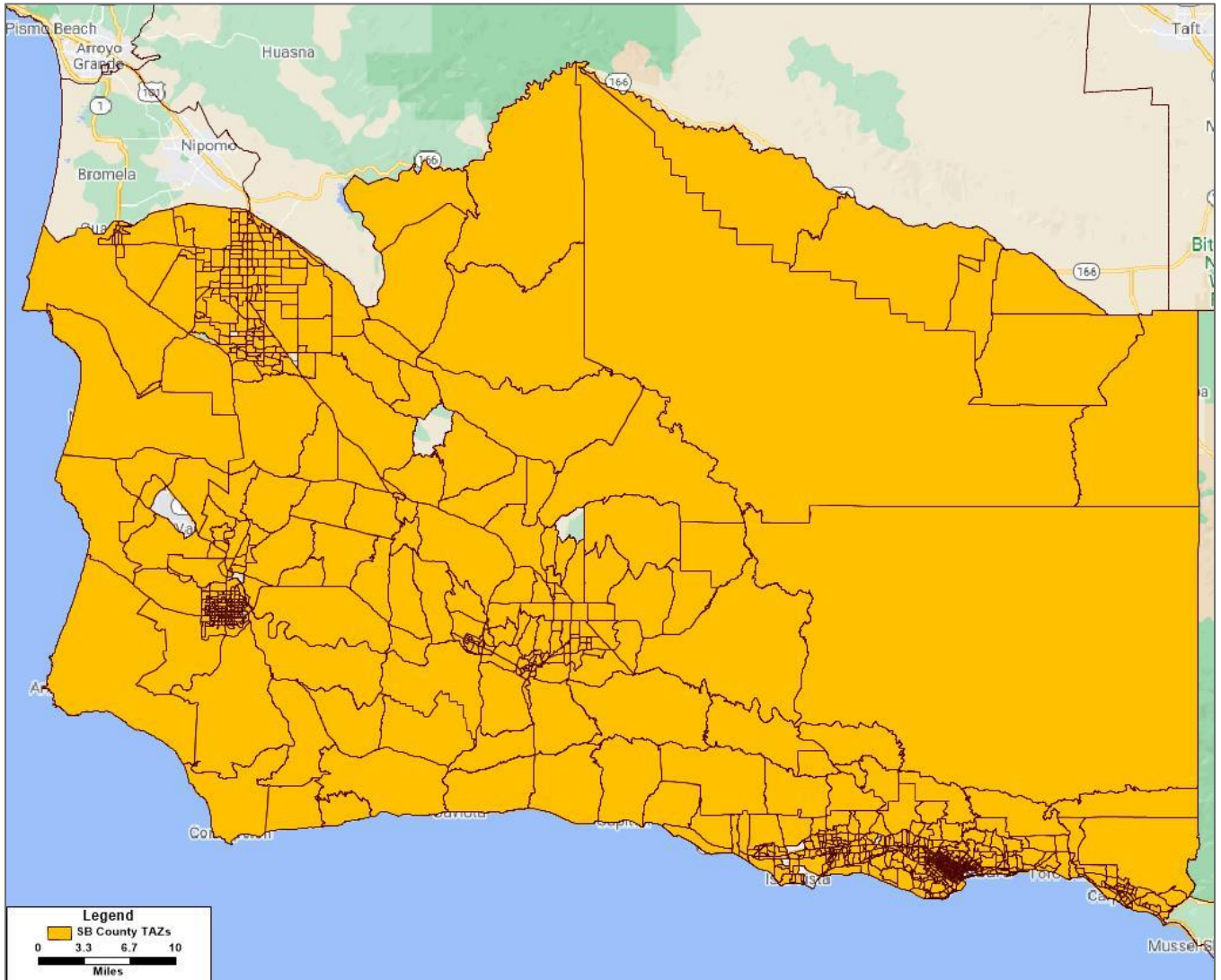


FIGURE 4. TAZS FOR CITYWIDE AVERAGE HOME-BASED VMT

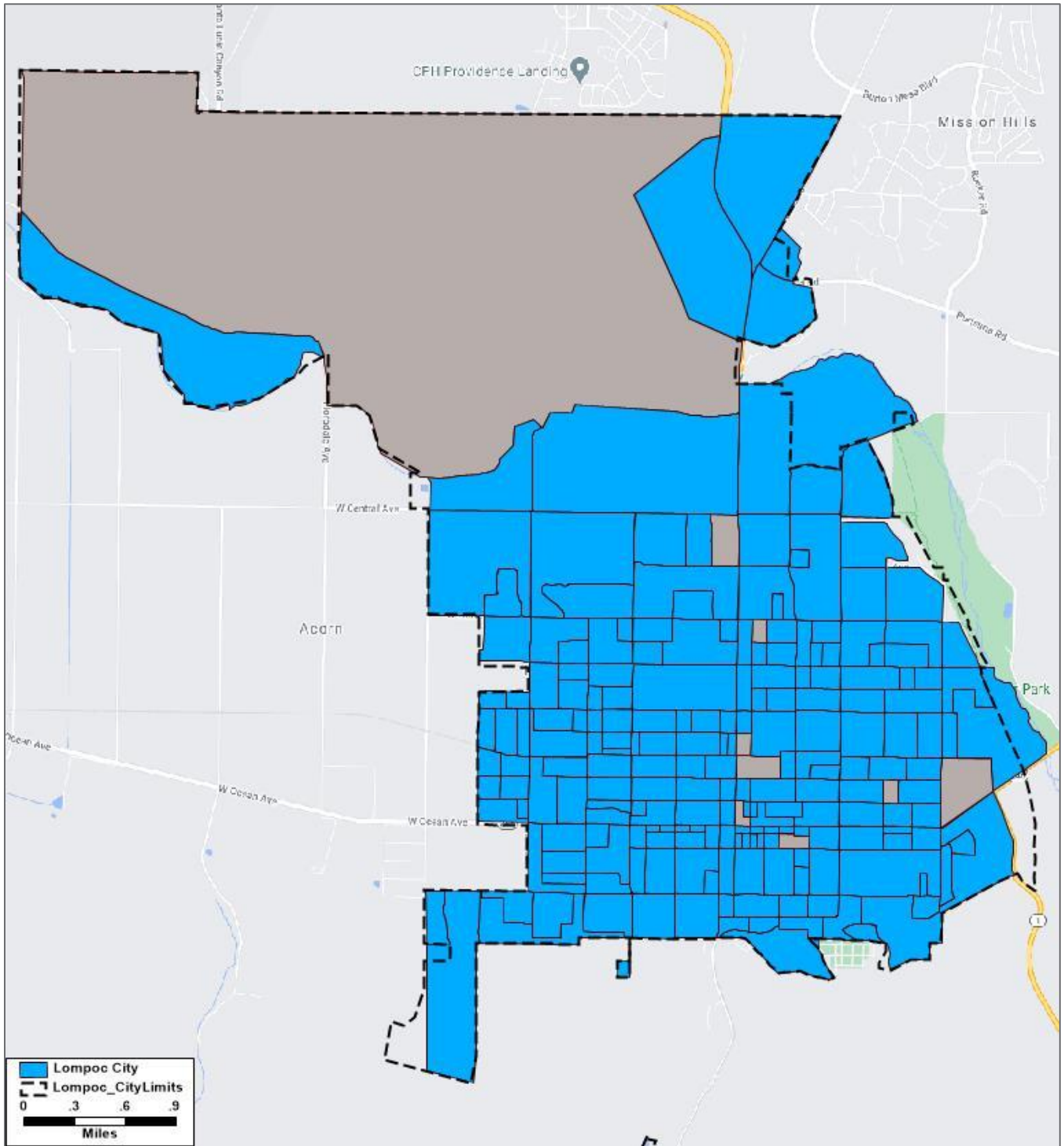


FIGURE 5. TAZS FOR REGIONWIDE AVERAGE HOME-BASED VMT

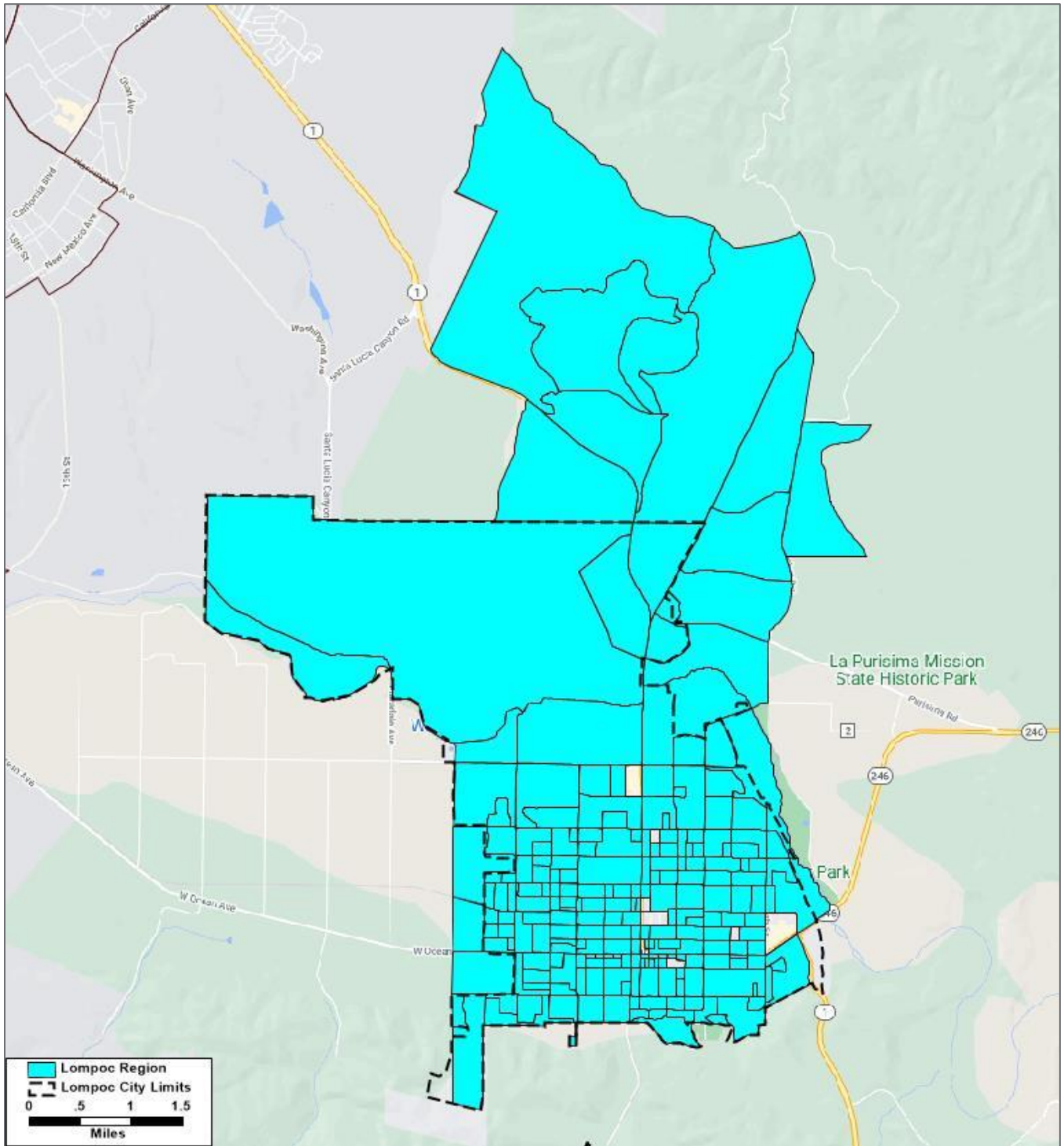


FIGURE 6. COUNTYWIDE TAZS FOR HOME-BASED-WORK VMT CALCULATION

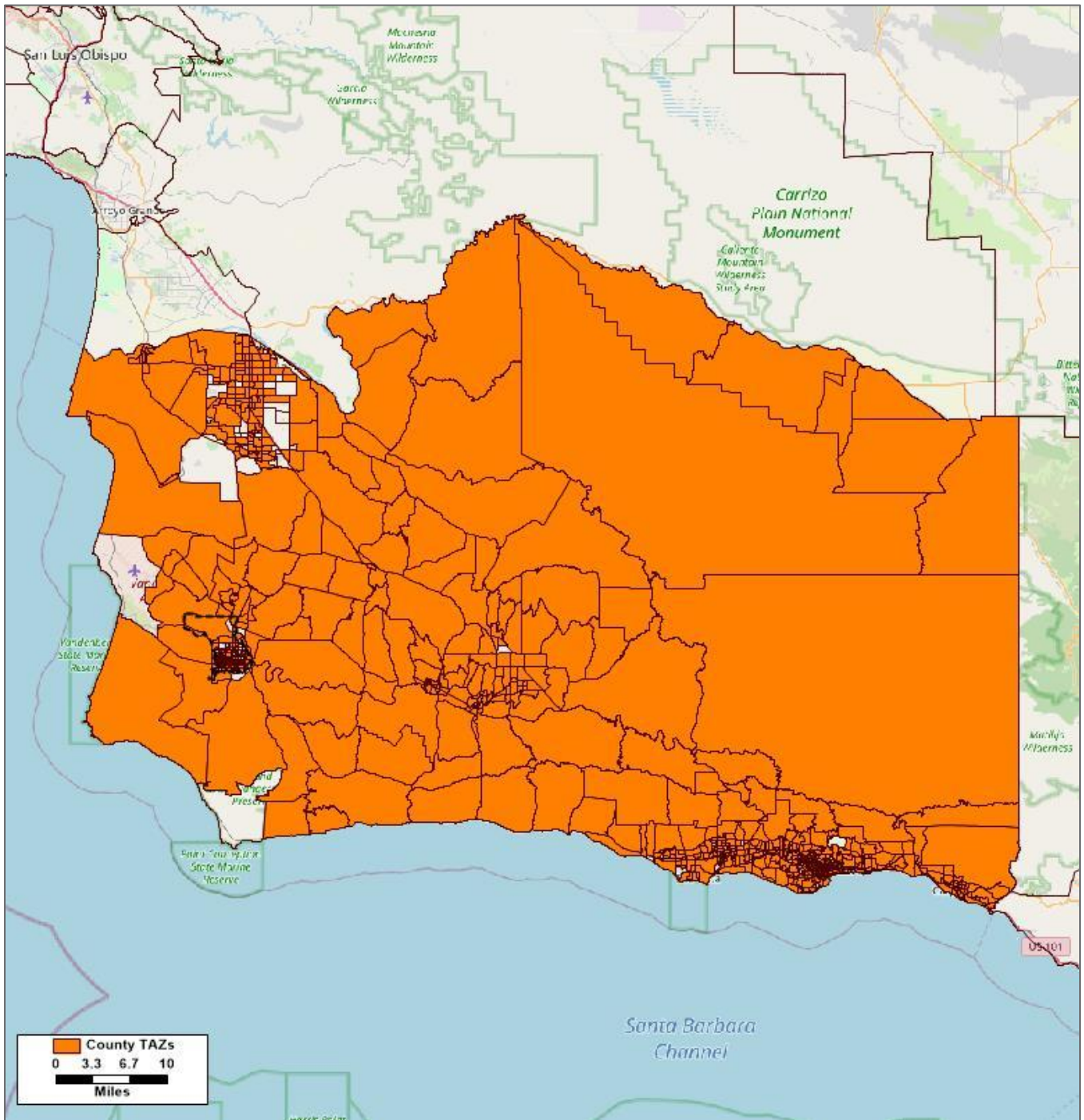


FIGURE 7. CITY OF LOMPOC TAZS FOR HOME-BASED-WORK VMT CALCULATION

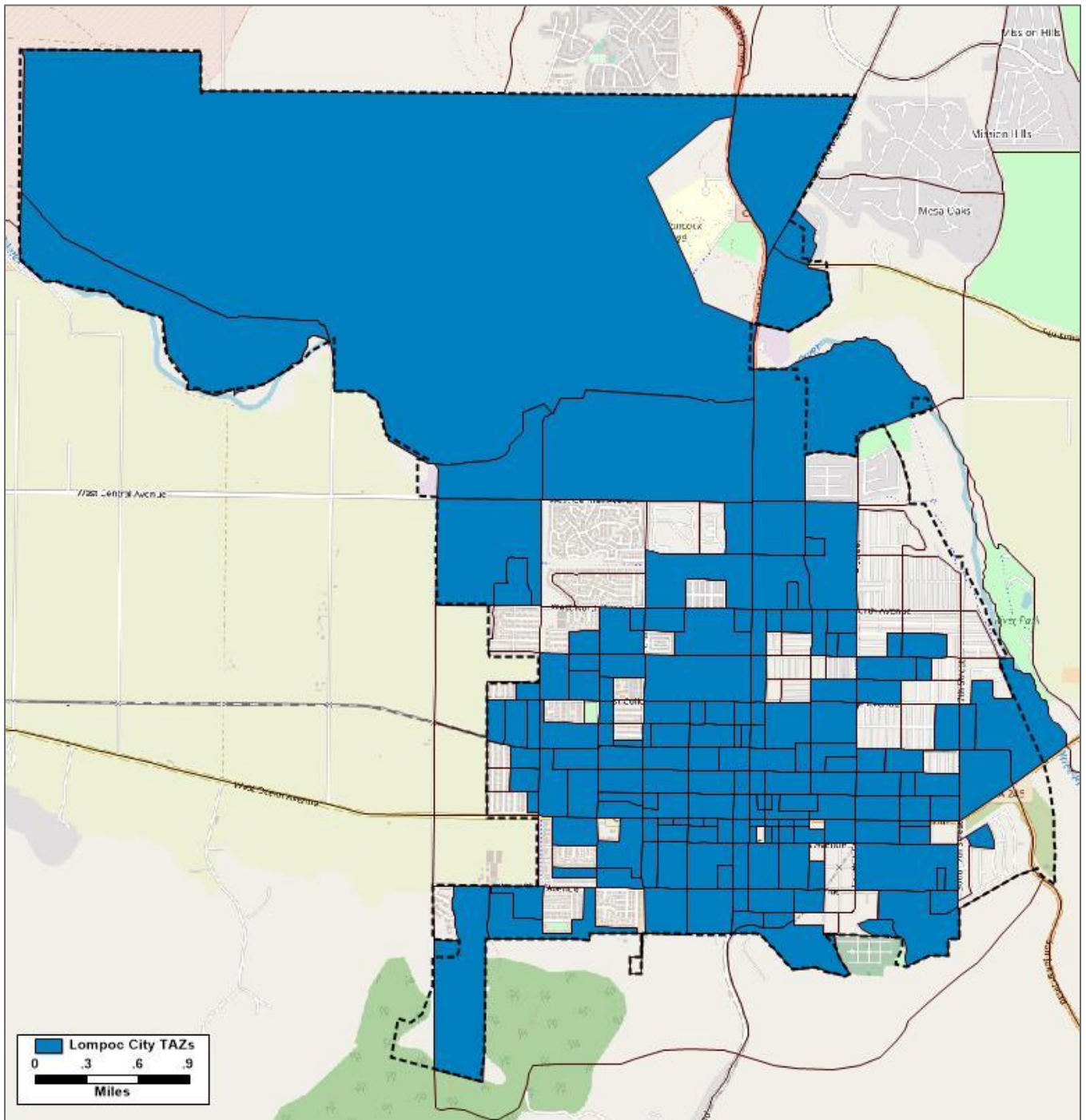


FIGURE 8. LOMPOC REGION TAZS FOR HBW VMT CALCULATION

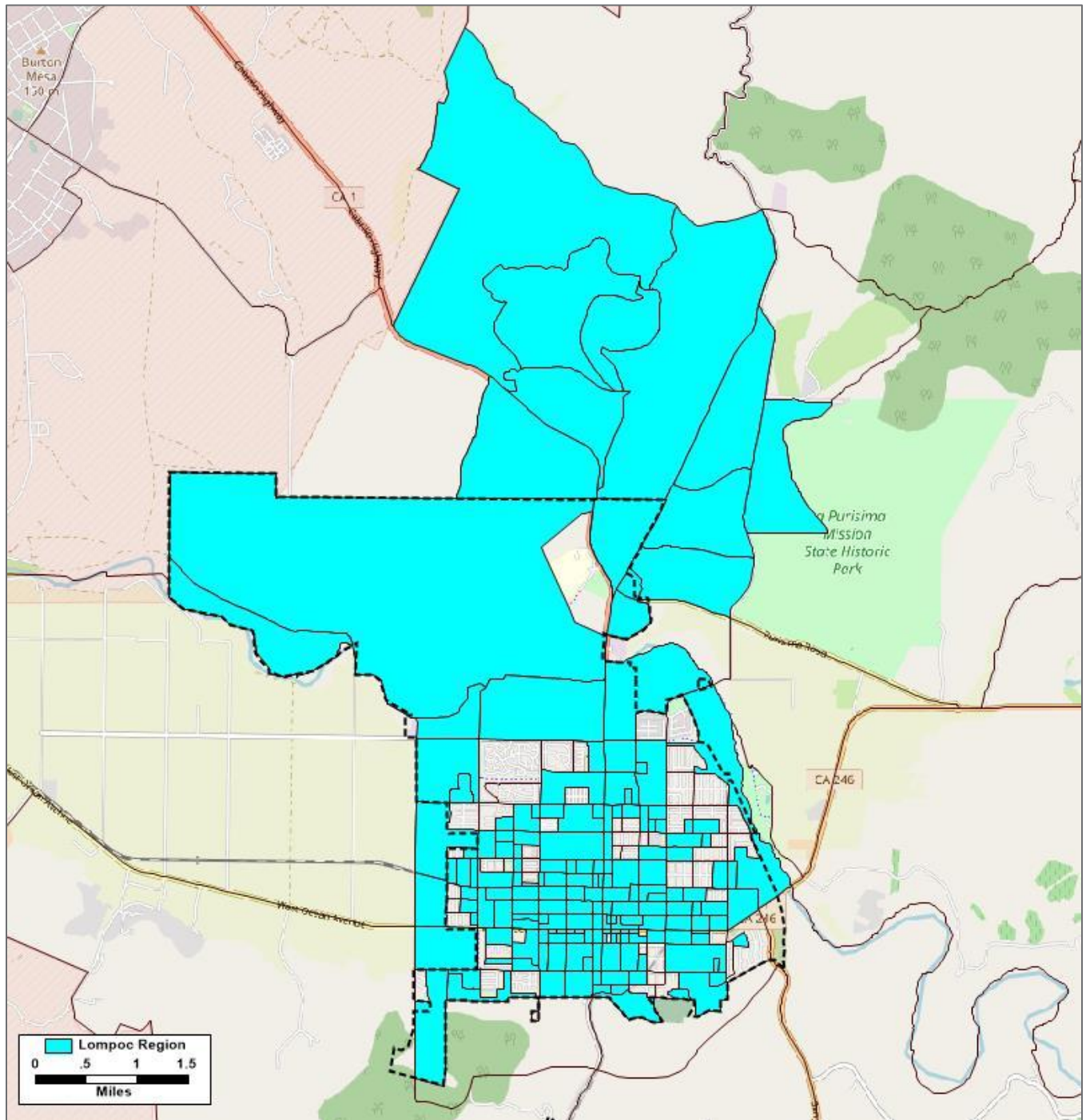


FIGURE 9. VMT PER CAPITA BY TAZ (COUNTYWIDE AVERAGE)

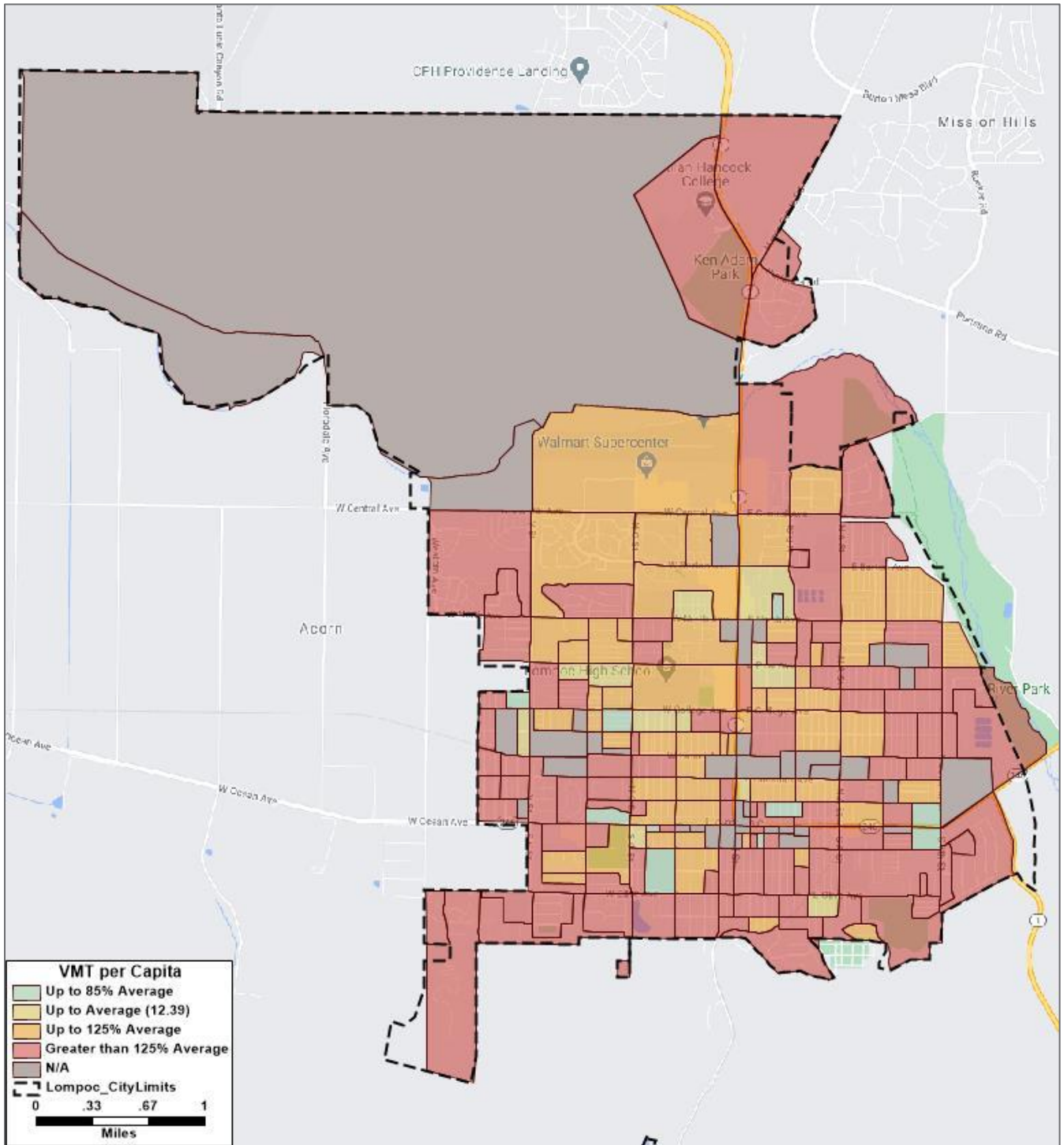
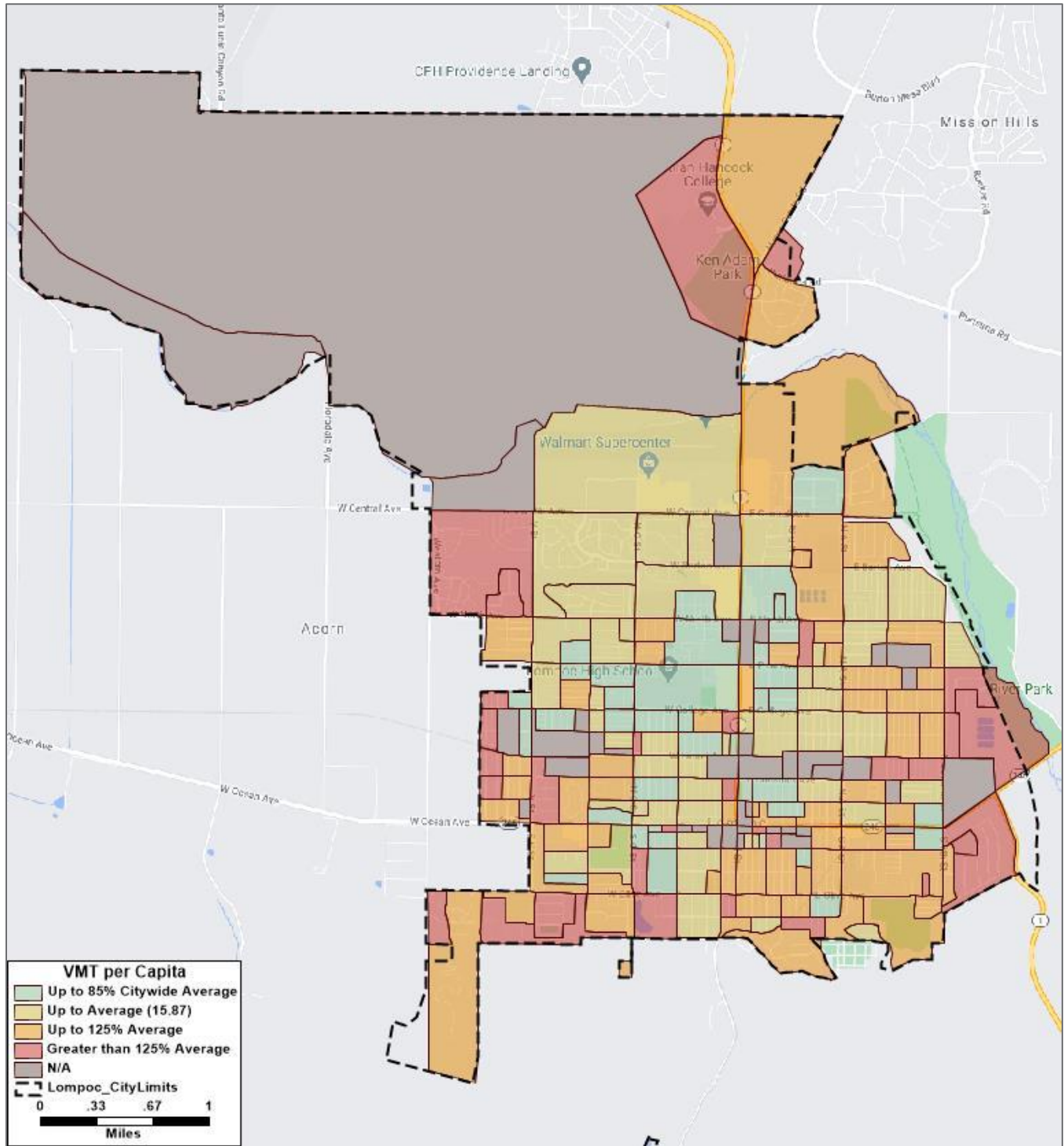


FIGURE 10. VMT PER CAPITA BY TAZ (CITYWIDE AVERAGE)



Note: Federal Correctional Institute TAZ not included in calculation of citywide average

FIGURE 11. VMT PER CAPITA BY TAZ (REGIONAL AVERAGE)

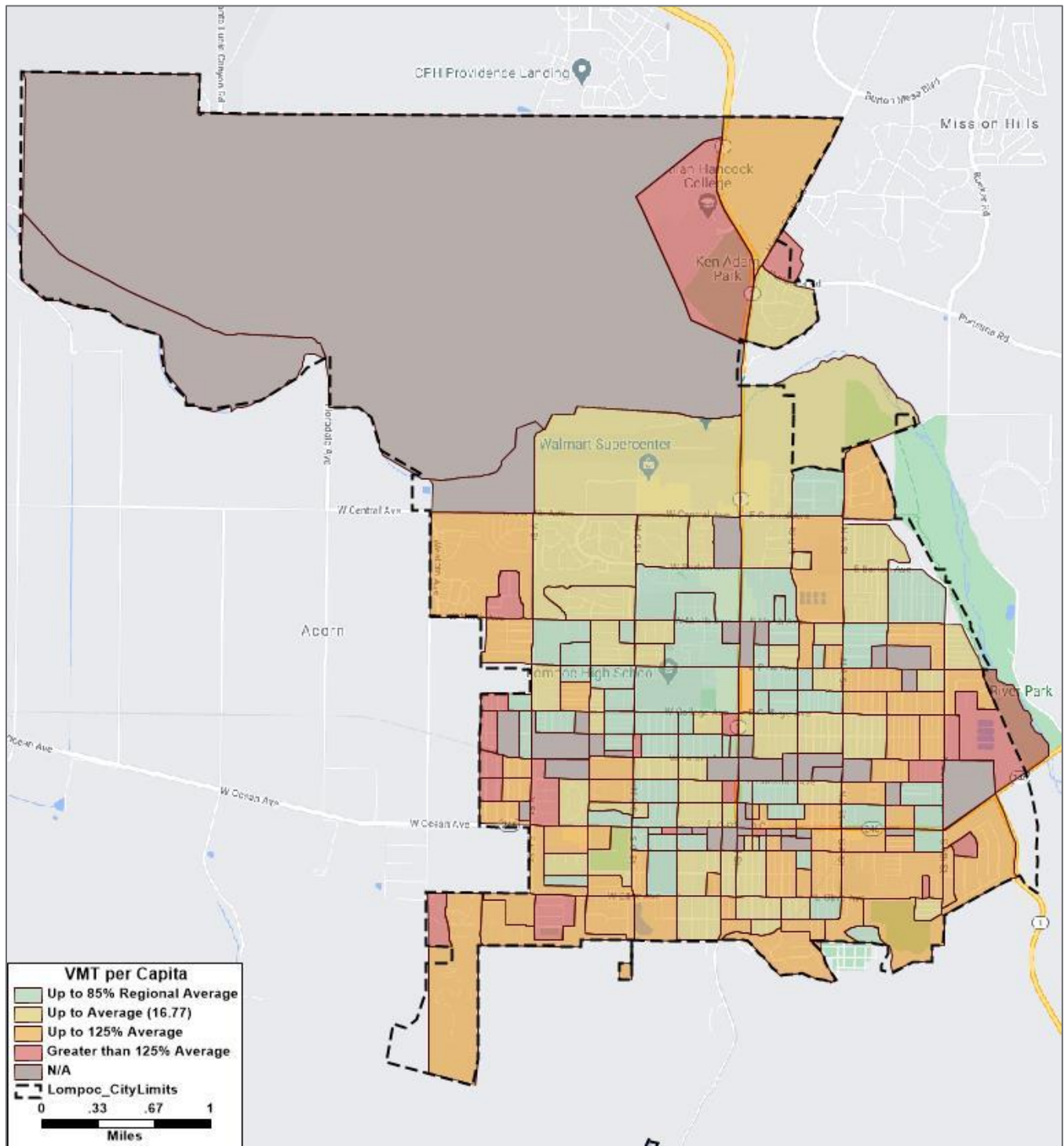


FIGURE 12. VMT PER EMPLOYEE BY TAZ (COUNTYWIDE AVERAGE)

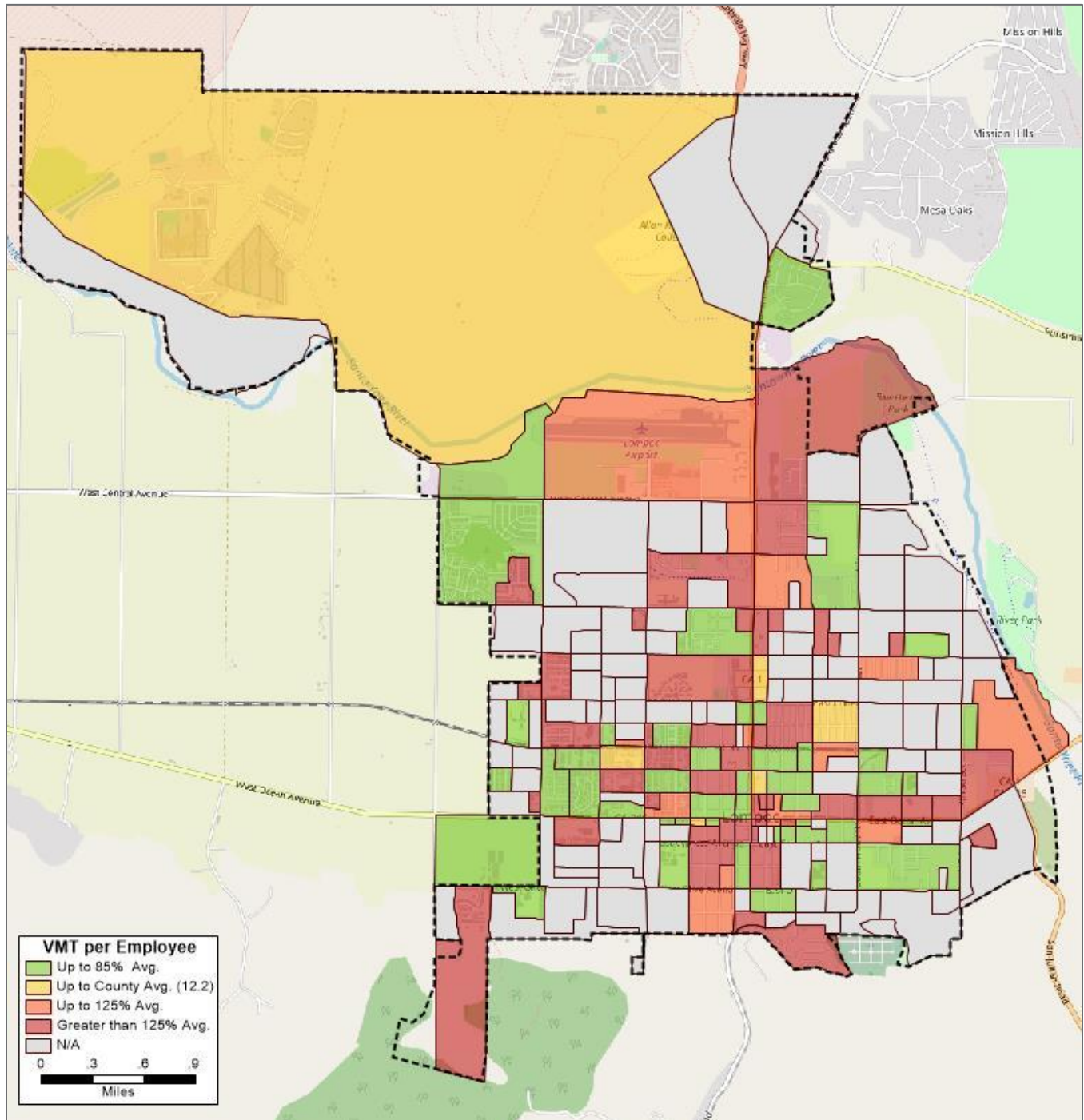


FIGURE 13. VMT PER EMPLOYEE BY TAZ (CITYWIDE AVERAGE)

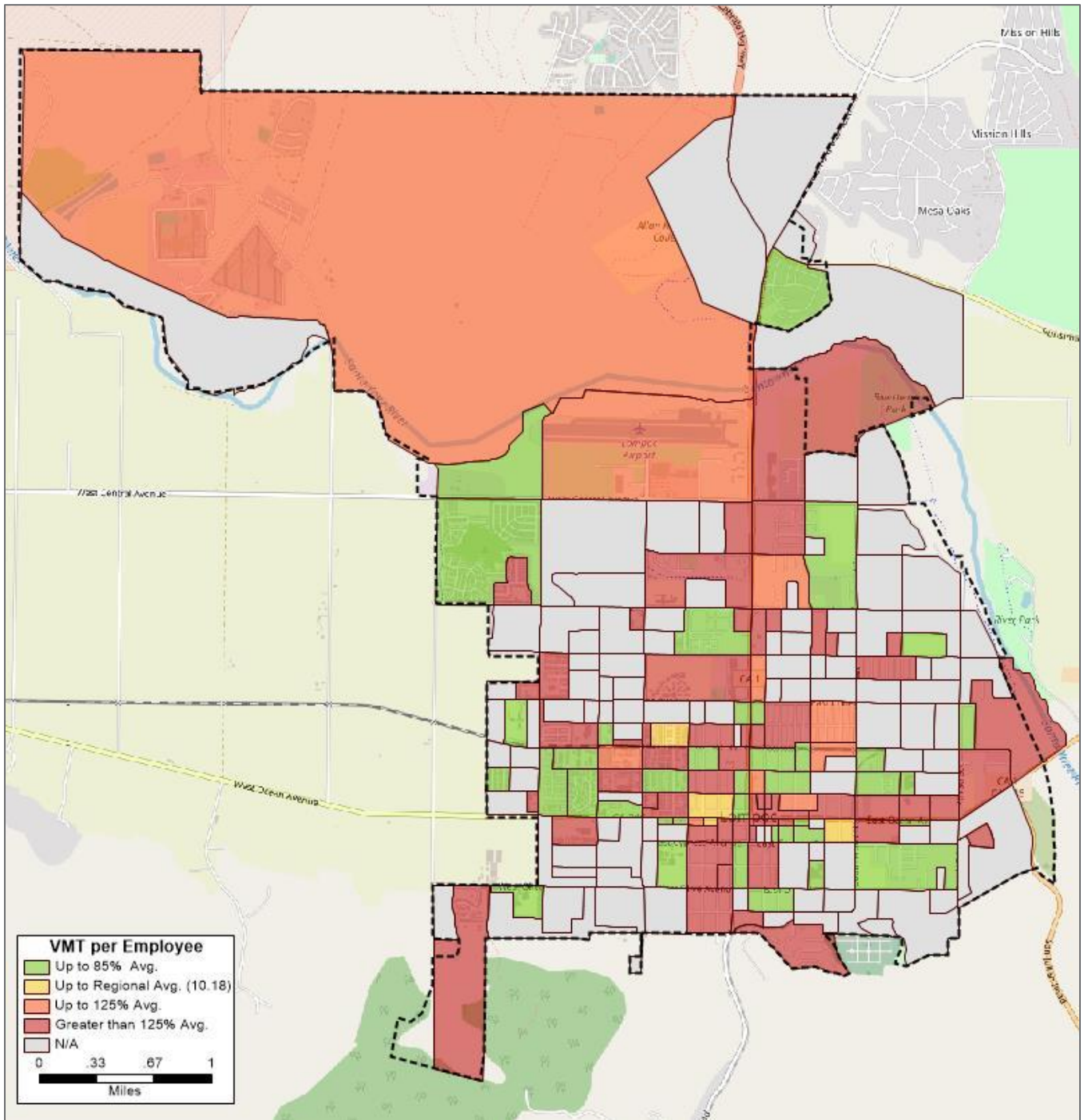
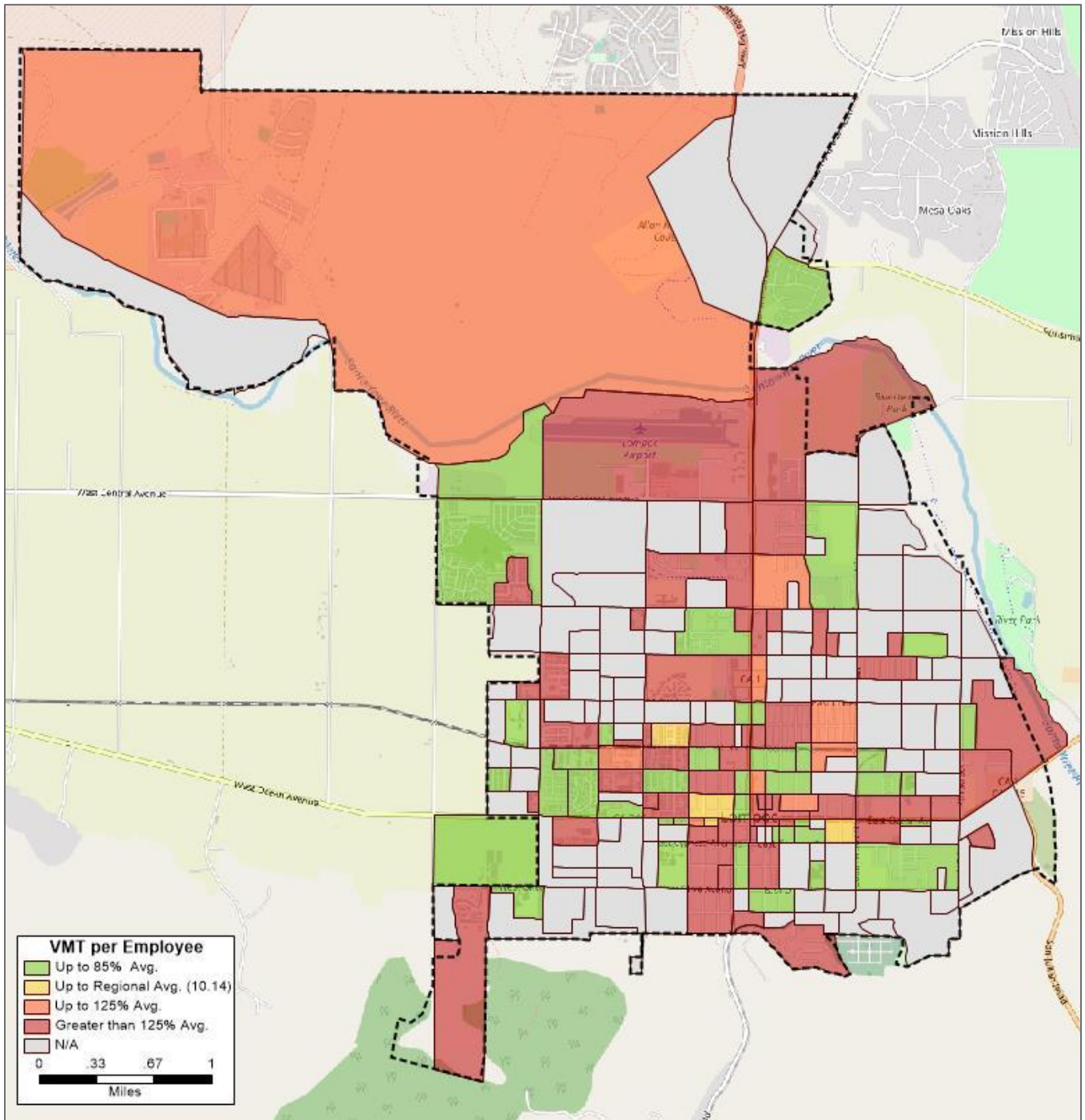


FIGURE 14. VMT PER EMPLOYEE BY TAZ (REGIONAL AVERAGE)



VMT ANALYSIS AND MITIGATION

VMT ANALYSIS

Projects that are not screened out using one of the methods described previously will require a formal VMT analysis. Projects that don't meet any of the screening criteria and are located in a non-green VMT screening area or those that would significantly alter existing or planned land uses will require project specific VMT calculations. The City will determine if a project would significantly alter land uses on a project by project basis. Note that projects located in a VMT rate area of greater than 125% (shown as red) that are considered unmitigable (see VMT mitigation section below) may accept a significant and unavoidable CEQA finding without performing a VMT analysis. When a VMT analysis is required, projects may be analyzed by inputting the project land uses into a companion City of Lompoc VMT Sketch Planning Tool developed as part of this study. The VMT Sketch Planning Tool is informed by over 80+ independent select zone analyses using the SBCAG RTDM. This tool is available to City staff to aid in this process.

VMT MITIGATION

The California Air Pollution Control Officers Association (CAPCOA) report on the effectiveness of various VMT mitigation strategies was used as the operable resource document for identifying the most suitable project level VMT mitigation strategies for the City of Lompoc. **Table 11** summarizes the recommended measures and their documented range of effectiveness. **Figure 14** shows the CAPCOA Transportation Strategies Organization chart. Additional detail on calculation methods for each method may be found in **Appendix A**.

Although the effect of multiple mitigation strategies is additive, CAPCOA establishes overall caps on maximum effectiveness when more than one mitigation strategy is applied. The recommended caps vary by land use context as follows:

- Urban settings – 75 percent maximum VMT reduction
- Compact infill settings – 35 percent maximum VMT reduction
- Suburban settings – 15 percent maximum VMT reduction

Consequently, for some very high VMT locations (greater than 125% shown as red on the VMT maps), project VMT impacts could potentially be unmitigable if located within suburban and/or greenfield settings.

CASE STUDY CALCULATIONS

Table 12 provides generic/hypothetical examples of VMT mitigation calculations. As shown, two of the four example projects are not mitigatable with the candidate strategies and would result in a significant and unavoidable impact under CEQA. The examples illustrate the challenges of mitigating VMT at the project site level.

This can have the intended effect for applicants to modify their projects by size, type or location to generate less VMT and align with state objectives for greenhouse gas reduction, land use efficiency, energy efficiency, and less overall reliance on the automobile.

Table 13 provides a comparison of actual development projects processed by the City of Lompoc. The development projects include: Summit View Homes (residential development); Community Health Center (quasi-public facility); Campbell Ranches Cooling Facility (Lt. Industrial development); and, Santa Rita Hills Wine Center (Mixed Use Development). The comparison is based on a hypothetical application of the proposed “new” VMT thresholds and analysis (screening criteria, VMT Sketch Planning Tool and/or travel demand model run) for determining CEQA impacts relative to how the projects were originally analyzed for impacts pre-SB 743 based on LOS. As shown, CEQA impacts were identified in two of the four projects based on LOS (Summit View Homes and Campbell Ranches Cooling Facility). The same two projects were determined to have CEQA impacts based on VMT. The same two projects determined not to have CEQA impacts based on LOS were also determined not to have impacts based on VMT (Community Health Center and Santa Rita Hills Wine Center).

Note that the mixed-use Santa Rita Hills Wine Center development was first analyzed with the VMT Sketch Planning tool. Per OPR guidance, each land use type was analyzed separately. All proposed land uses except the proposed Office use portion of the development was either screened or showed no impact. However, a full model run was executed using the SBCAG RTDM reflecting all proposed land uses which showed a net decrease in VMT. For complicated mixed-use projects a similar approach may be required.

While the impact findings are congruent between the two metrics (LOS and VMT), the real difference lies with the choice of mitigation for the development determined to have impacts. Whereas LOS impacts promote site-specific infrastructure treatments to reduce congestion, VMT impacts would focus on programmatic strategies that would reduce employee or resident VMT. These are described in more detail below.

MITIGATION FEE PROGRAMS

VMT mitigation banks or exchanges would provide an alternative to mitigating VMT impacts at the project site level. With a mitigation bank, developers would pay a fee in lieu of specific on-site mitigation measures. The combined fees would then be used to pay for mitigation projects across the City. With a mitigation exchange, developers would select from a pre-approved list of mitigation projects throughout the City.

Any such mitigation fee program or exchange would need to support its mitigation estimates with rigorous analysis and would be subject to the legal requirements of CEQA (i.e., CEQA mitigation monitoring requirements) and the California Mitigation Fee Act. As such, this option would not be a quick or easy undertaking. However, if the City finds over the first few years of adopting VMT thresholds that desirable projects are consistently difficult to mitigate, it may wish to pursue this



option. This could be done in conjunction with the next general plan or transportation impact fee update.

TABLE 11. CAPCOA MITIGATION STRATEGIES

STRATEGY	DESCRIPTION	REPORTED RANGE OF EFFECTIVENESS	NOTES
LAND USE MEASURES			
INCREASE DENSITY	This measure involves increasing the density of the proposed project.	0.8-30%	Project density will be somewhat determined by zoning. Also, increased project densities may result in LOS or other adverse transportation or other environmental effects during local transportation analysis and/or CEQA analysis.
INCREASE DIVERSITY OF URBAN AND SUBURBAN DEVELOPMENTS (MIXED USE)	Involves including more than a single land use(s) in the proposed project.	9-30%	
INTEGRATE AFFORDABLE AND BELOW MARKET RATE HOUSING	While housing developments that are 100 percent affordable may be presumed less than significant, this method provides credit for partially affordable developments.	0.04-1.2%	Literature supports only a modest VMT reduction for partially affordable developments.
IMPROVE DESIGN OF DEVELOPMENT (INCREASING NETWORK CONNECTIVITY)	This measure is only appropriate for larger developments and should be implemented in conjunction with complete sidewalk coverage, pedestrian crossings, street trees and other design elements that support a pedestrian-oriented environment	3-21%	Based on intersections per square mile.
NEIGHBORHOOD/SITE ENHANCEMENTS			

TABLE 11. CAPCOA MITIGATION STRATEGIES

STRATEGY	DESCRIPTION	REPORTED RANGE OF EFFECTIVENESS	NOTES
PEDESTRIAN NETWORK IMPROVEMENTS	Provide a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the project site, minimize barriers to pedestrian access and interconnectivity, eliminate physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation.	1-2%	Would need to develop set of standards for pedestrian connections that go "above and beyond" existing requirements.
PROVIDE TRAFFIC CALMING MEASURES	Project design will include pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements.	0.25-1%	Depends on percent of project intersections and streets where improvements are provided.
PROVIDE BIKE PARKING IN NON-RESIDENTIAL PROJECTS	A non-residential project will provide short-term and long-term bicycle parking facilities to meet peak season maximum demand.	0.63%	Not recommended as a stand-alone strategy in the CAPCOA report but other literature cites a modest 0.625% reduction.
PARKING POLICY/PRICING			
LIMIT PARKING SUPPLY	The project will change parking requirements and types of supply within the project site to encourage "smart growth" development and alternative transportation choices by project residents and employees.	5-12.5%	May conflict with existing parking requirements.
UNBUNDLE PARKING COSTS	This project will unbundle parking costs from property costs. Unbundling separates parking from property costs, requiring those who wish to purchase parking spaces to do so at an additional cost from the property cost.	2.6-13%	Unbundle costs for parking from building rent. Lompoc market may not support this measure.

TABLE 11. CAPCOA MITIGATION STRATEGIES

STRATEGY	DESCRIPTION	REPORTED RANGE OF EFFECTIVENESS	NOTES
VOLUNTARY PARTICIPATION IN COMMUTE TRIP REDUCTION PROGRAM	Sites participating in a commute trip reduction program apply strategies such as preferential carpool parking and subsidized transit passes.	1-6.2%	

Source: California Air Pollution Control Officers Association. Quantifying Greenhouse Gas Mitigation Measures, August 2010.

FIGURE 14. CAPCOA – TRANSPORTATION STRATEGIES ORGANIZATION

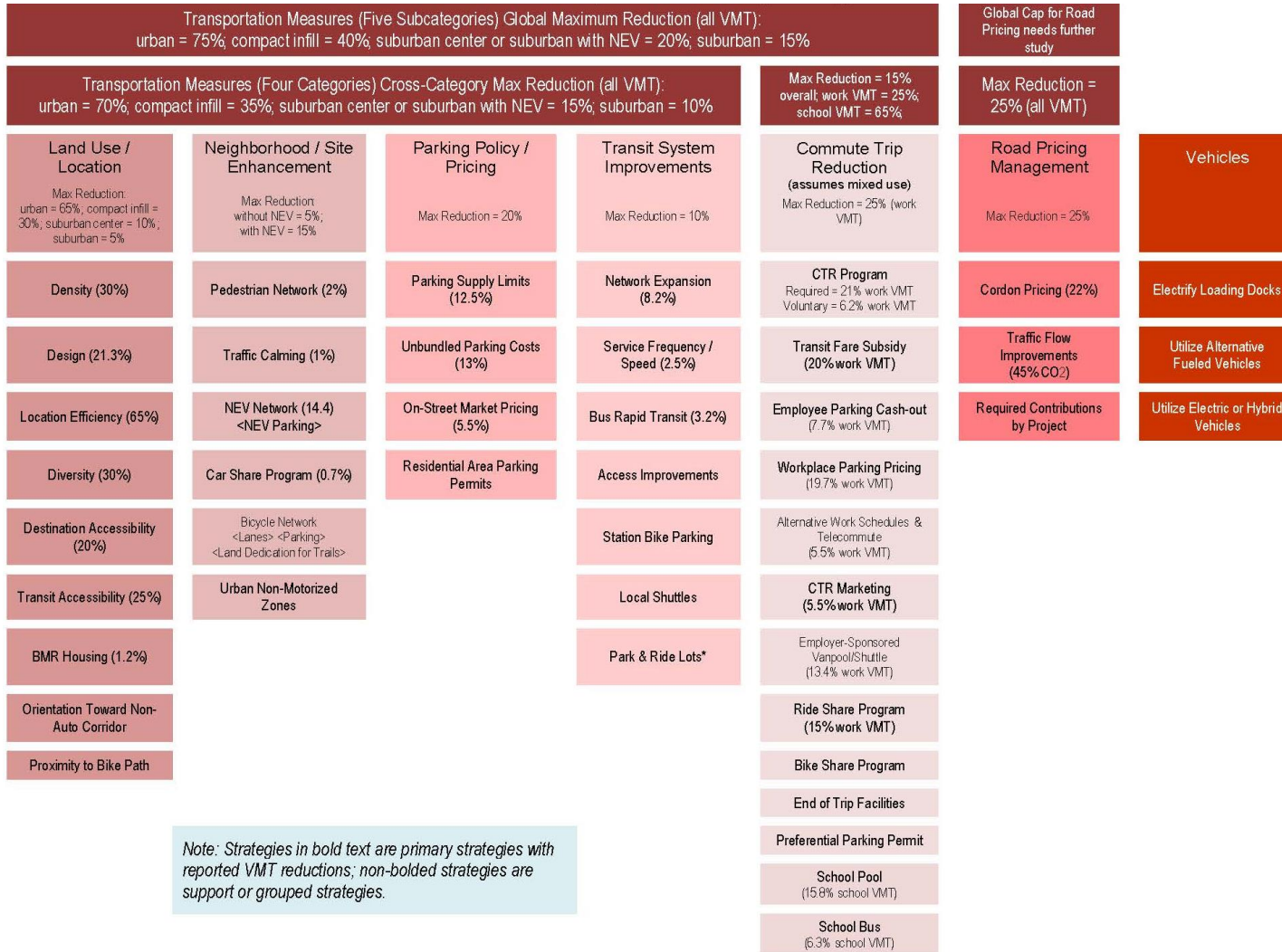


TABLE 12. SAMPLE MITIGATION CALCULATIONS (BASELINE METRIC AND THEREHSOLD VALUES ARE HYPOTHETICAL)

PROJECT (SEE BELOW FOR DESCRIPTION):	A	B	C	D
BASELINE VMT PER UNIT (HYPOTHETICAL)	44.5	86.9	71.8	47.7
THRESHOLD (HYPOTHETICAL)	44.0	64.8	61.6	44.0
VMT REDUCTIONS (PERCENT):				
INCORPORATE AFFORDABLE HOUSING				0.083
IMPROVE NEIGHBORHOOD CONNECTIVITY			0.013	
PEDESTRIAN NETWORK IMPROVEMENTS	0.020	0.006	0.020	
PROVIDE TRAFFIC CALMING MEASURES			0.008	0.010
PROVIDE BIKE PARKING		0.006		
UNBUNDLED PARKING COSTS¹		0.136		
VOLUNTARY TRIP REDUCTION PROGRAM²		0.054		
TOTAL VMT REDUCTION³	0.02	0.20 (0.15)	0.04	0.09
VMT AFTER MITIGATION	43.61	69.30	68.87	43.26
MITIGATED IMPACT?	Yes	No	No	Yes

Projects: A) Multifamily Residential; B) Office Building, C) 100 Unit Single Family Residential Project; D) 200 Unit Apartment Complex

Notes:

- a) Assumes \$200 monthly parking charge and \$6,000 annual ownership cost
- b) Assumes suburban center effectiveness rate and 100% eligibility
- c) CAPCOA report recommends capping total reductions at 15% for suburban locations



TABLE 13. IMPACT COMPARISON OF ACTUAL DEVELOPMENTS (VMT VS. LOS)

Project Name	Project Summary	Project Location	VMT Analysis (Proposed Lompoc VMT Threshold relative to Regional Average)			Previous LOS Impacts
			Project Screening	From Sketch Planning Tool	Net VMT Impact from Model Run	
Summit View Homes	44 SFDU on vacant site	NE corner of Purisima Road and SR-1, TAZ 40003, parcels 097-100-045, 097-100-046	No - project generates 425 trips	VMT/capita > threshold (Impact)	N/A	Yes
Community Health Center	28,000 SF medical clinic 19,750 SF of commercial uses	SE corner of Ocean Avenue & U Street, TAZ parcels 091-110-070, 091-110-071	Commercial use can be screened as local serving retail	N/A	With full model run, project has <i>net total VMT reduction</i> (40 commercial emp, 112 office emp) - No Impact	No
Campbell Ranches Cooling Facility	71,930 SF agricultural cooling facility; 36 employees	1600 N L St, TAZ, parcel 093-450-059	None applicable	VMT/emp for Industrial uses > threshold (Impact)	N/A	Contributes to cumulative impact and improvement project
Santa Rita Hills Wine Center	Mixed-use development : 55-room hotel 20,431 square feet of retail + 7,806 square feet of Bar-restaurant 5,847 square feet of commercial office space 77,000 square foot industrial (wine production)	099-141-034	Total retail uses > 50KSF so can't be screened as local serving retail	VMT/emp for office uses > threshold (Impact)	With full model run, project has <i>net total VMT reduction</i> (114 commercial emp, 23 office emp, 6 industrial emp) - No Impact	No; only site improvements recommended

Note: Net VMT impacts calculated as total OD VMT to, from, and within the City of Lompoc with and without project.

REFERENCES

California Department of Transportation. Draft Transportation Analysis Framework: Induced Travel Analysis, March 2020

Office of Planning and Research. Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018.

California Air Pollution Control Officers Association. Quantifying Greenhouse Gas Mitigation Measures, August 2010.



APPENDIX A

VMT MITIGATION CALCULATION METHODS

This appendix presents calculation methods for the VMT mitigation strategies proposed for use in Lompop. The calculation methods may be implanted in standardized spreadsheet templates.

LAND USE MEASURES

INCREASE DENSITY

Inputs: Number of housing units or jobs per acre for development site

Calculation: Percent VMT reduction (capped at 30 percent) = A*B

where A is the percent increase in jobs or housing units per acre for the site and B is the elasticity of VMT with respect to density.

A is calculated as

(Housing units per acre-7.6)/7.6 or

(Jobs per acre-20/20)

The CAPCOA report recommends that A be capped at 500 percent and the overall VMT reduction be capped at 30 percent. The factor for B recommended by CAPCOA is 0.07.

INCREASE DIVERSITY (ADD MIXED USE TO PROJECT)

Inputs: Percentage of each land use type in the project (building floor area)

Calculation: Percent VMT reduction = Land Use Change * B where:

$$Land\ Use\ Index\ (LUI) = \frac{-a}{\ln(6)}$$

$$a = \sum_{i=1}^6 a_i \ln(a_i)$$

$$Land\ Use\ Change = \frac{LUI - 0.15}{0.15}$$

a_i = building floor area of land use/total square feet of area considered

a_1 = single family residential

a_2 = multifamily residential

a_3 = commercial

a_4 = industrial

a_5 = institutional

a_6 = park

If land use is not present, set a_i equal to 0.01

B is the elasticity of VMT with respect to land use index (LUI) and 0.09 is the recommended value.

Note that the OPR guidance recommends analyzing the residential and employment land uses of a mixed-use project separately. However, this method could be applied to reduce the VMT of each use in cases where mitigation is required.

INTEGRATE AFFORDABLE HOUSING

While housing developments that are 100 percent affordable may be presumed less than significant with respect to VMT, this method provides credit for partially affordable developments.

Inputs: Percent of residential units that are deed-restricted for extremely low income (ELI), very low income (VLI), and low-income households (LI).

Method: Percent VMT Reduction = (Percent ELI Units) (32.5) + (%VLI Units)(25.2) + (% LI Units)(10.2)

IMPROVE DESIGN OF DEVELOPMENT (INCREASE NETWORK CONNECTIVITY)

Inputs: Number of intersections per square mile

Method: Percent VMT Reduction = Intersections *B

Where Intersections = Percent increase in intersections versus a typical suburban development

$$= (\text{Project Intersections per Square Mile}-36)/36$$

B=elasticity of VMT with respect to intersections (0.12 is recommended value from literature).

This measure is only appropriate for larger developments and should be implemented in conjunction with complete sidewalk coverage, pedestrian crossings, street trees and other design elements that support a pedestrian-oriented environment. Note that the value of the Intersections factor should be capped at 500 percent.

NEIGHBORHOOD AND SITE ENHANCEMENTS

PEDESTRIAN NETWORK IMPROVEMENTS

Inputs: Information about pedestrian access and connectivity within the project site and connecting to off-site destinations.

Method: The VMT reduction is applied according to the table below.

ESTIMATED VMT REDUCTION	EXTENT OF PEDESTRIAN ACCOMMODATIONS	CONTEXT
2%	Within Project Site and Connecting Off-Site	Urban/Suburban
1%	Within Project Site	Urban/Suburban
<1%	Within Project Site and Connecting Off-Site	Rural

Source: California Air Pollution Control Officers Association. Quantifying Greenhouse Gas Mitigation Measures, August 2010.

PROVIDE TRAFFIC CALMING MEASURES

This measure is applicable for larger developments and where improvements extend beyond the project frontage.

Inputs: Percent of streets and intersections within project site with traffic calming improvements.

Method: The VMT reduction is applied according to the table below.

	% STREETS WITH IMPROVEMENTS				
	25%	50%	75%	100%	
	<u>PERCENT VMT REDUCTION</u>				
% INTERSECTIONS WITH IMPROVEMENTS	25%	0.25%	0.25%	0.5%	0.5%
	50%	0.25%	0.5%	0.5%	0.75%
	75%	0.5%	0.5%	0.75%	0.75%
	100%	0.5%	0.75%	0.75%	1%

Source: California Air Pollution Control Officers Association. Quantifying Greenhouse Gas Mitigation Measures, August 2010.

PROVIDE BIKE PARKING IN NON-RESIDENTIAL PROJECTS

This strategy has minimal impact as a stand-alone measure and should be implemented in conjunction with enhanced street network characteristics and bicycle facilities.

Inputs: Information on short term and long terms bicycle parking facilities sized to meet peak maximum demand.

Method: VMT is reduced by 0.625%.

PARKING PRICING AND POLICY

LIMIT PARKING SUPPLY

This mitigation strategy involves providing less parking than required by the Institute of Transportation Engineers (ITE) Parking Generation Manual. This strategy may conflict with municipal code parking requirements.

Inputs: ITE parking generate rate for project site and actual parking provision rate for project site.

Method: $Pct\ VMT\ Reduction = \frac{(Actual\ Parking\ Provision - ITE\ Parking\ Generation\ Rate)}{ITE\ Parking\ Generation\ Rate} * 0.5$

UNBUNDLE PARKING COSTS FROM PROPERTY COST

This strategy involves charging for parking on a separate basis from other property costs. For example, apartment or office rent would be separate from parking space rental. This strategy would involve ongoing monitoring to make sure it continues to be enforced.

Inputs: Monthly parking cost for project site.

Method: $Percent\ VMT\ Reduction = Change\ in\ vehicle\ ownership\ cost * elasticity * A$

Where

elasticity of vehicle ownership with respect to total vehicle costs = -0.4

Change in vehicle ownership cost = $Monthly\ parking\ cost * 12 / annual\ vehicle\ ownership\ cost$

A = 85% (adjustment from vehicle ownership to VMT)

COMMUTE TRIP REDUCTION PROGRAMS

This VMT mitigation strategy would expand participation in this TDM program to all sites requiring VMT mitigation. The research cited for this strategy assumes that the TDM program will include



carpooling, ride matching, preferential carpool parking, flexible work schedules for carpools, a half-time transportation coordinator, vanpool assistance, bicycle parking, showers, and locker facilities.

Inputs: Percentage of employees eligible for program and location of project site (low density suburb, suburban center, or urban location).

Method:

Percent VMT Reduction = Percent reduction in commute VMT * Percent employees eligible

Where percent reduction in commute VMT is 5.2% (low density suburb), 5.4% (suburban center), or 6.2% (urban).