SB 743 Implementation Transportation Analysis Updates

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Chapter 1 – Introduction

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and started a process intended to fundamentally change transportation impact analysis as part of compliance with the California Environmental Quality Act (CEQA). In summary, SB 743 eliminates level of service (LOS) as a basis for determining significant transportation impacts under CEQA and provides a new performance metric – vehicle miles of travel (VMT). With this change, the State is shifting the focus from measuring a project's impact to drivers (LOS) to measuring the impact of driving (VMT) to achieve State goals of reducing greenhouse gas (GHG) emissions, encouraging infill development, and improving public health through active transportation.

In response to SB 743, the City of Gardena has adopted new transportation impact thresholds to adhere to CEQA requirements and provide guidance on conducting transportation studies in the City. The following chapters of this report are organized as follows:

- **Chapter 2: Transportation Analysis Implications for SB 743** – This chapter provides an overview of SB 743 and what it means for transportation impact analysis in the City of Gardena.
- **Chapter 3: Circulation Plan Update** – This chapter provides recommended changes to the Gardena General Plan 2006 Community Development Element Circulation Plan that relate to the adoption of VMT thresholds, and the removal of LOS analysis for CEQA purposes. Additional Circulation Plan edits related to Complete Streets, and other minor changes to reflect new requirements, such as elimination of the Congestion Management Plan (CMP), are also recommended in this chapter.
- **Chapter 4: CEQA Methodology, Thresholds, and Mitigation** – This chapter outlines the methodology for calculating VMT for land use projects and plans in the City of Gardena, provides the threshold of significance, and discusses mitigation options for projects that are found to have a VMT impact. Analysis requirements for transportation projects are also presented.
- **Chapter 5: Local Transportation Assessment Procedures** – This chapter outlines the City's procedures for studying a project's effects on the transportation system. While CEQA requirements have changed, the City can continue to dictate the types of analysis to be conducted for land use and transportation projects, such as continuing to include LOS. Although LOS would no longer be used to determine a project's transportation impact under CEQA, it can still be used to inform decision makers on the overall effects of a project.

Chapter 2 – Transportation Analysis Implications for SB 743

What is SB 743?

On September 27, 2013, Governor Jerry Brown signed SB 743 into law. The primary purpose of SB 743 was eliminating LOS as a measure of vehicular capacity and traffic congestion as a basis for determining significant transportation impacts under CEQA. The law directed the Governor's Office of Planning and Research (OPR) to update the State CEQA Guidelines to include new performance criteria for determining the significance of transportation impacts.

In response to SB 743, OPR selected vehicle miles of travel (VMT) as the new transportation impact metric. OPR then submitted updates to the State CEQA Guidelines, and these updates were certified by the Natural Resources Agency in December 2018. Lead agencies have been granted a grace period until July 1, 2020 to opt-in to implementing a VMT analysis as part of their environmental review process under CEQA.

***CEQA** refers to the California Environmental Quality Act. This statute requires identification of any significant environmental impacts of State or local action including approval of new development or infrastructure projects. The process of identifying these impacts is typically referred to as the environmental review process.*

To help aid lead agencies with SB 743 implementation, OPR produced a Technical Advisory (see link below). The Technical Advisory helps lead agencies think about the variety of implementation questions they face with respect to shifting to a VMT metric. However, lead agencies must still make their own specific decisions about VMT methodology, thresholds, and mitigation. These decisions should be consistent with the City's goals as expressed in their general plan.

Additional Online Resources:

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

What is VMT? A short video explaining the basic components of VMT along with additional background on SB 743 is provided on this informational website. http://www.fehrandpeers.com/sb743/

Why did the State adopt SB 743?

The intent of SB 743 is to better support the following State goals:

- Reducing greenhouse gas (GHG) emissions
- Encouraging infill development
- Improving public health through active transportation

While changes to driving conditions that increase travel times are an important consideration for traffic operations and management, these changes do not fully describe environmental effects associated with fuel consumption, emissions, and public health. VMT based impact criteria will help to incorporate these environmental effects and move toward achieving the State goals listed above.

How does LOS compare to VMT?

Conventional approaches to transportation impact analysis tend to focus on vehicle LOS related to driver delay and roadway congestion. SB 743 changes the focus of transportation impact analysis under CEQA from measuring impacts to drivers (LOS), to measuring the impact of driving (VMT).

While LOS measures the driver's experience traveling through a specific point on the roadway system (e.g., through an intersection), VMT captures both the number of trips and the length of those trips on the entire roadway network. For example, a proposed retail development intended to serve nearby residents in an urban area can result in an LOS impact because it adds vehicle trips to an already congested intersection. In comparison, a proposed office building in an industrial area may not result in any LOS impacts because it is surrounded by multi-lane roadways with plenty of vehicle capacity, but it may attract trips from many miles away and result in a larger burden on the transportation network. Relying solely on LOS for CEQA impact analysis has resulted in urban sprawl in some areas.

LOS *refers to "Level of Service," a metric that assigns a letter grade to network performance based on the amount of congestion experienced by drivers, ranging from LOS A to LOS F. LOS is typically reported for individual intersections during the most congested time of day (i.e. peak hours).*

VMT *refers to "Vehicle Miles Traveled," a metric that accounts for the number of vehicle trips generated plus the length or distance of those trips. For transportation impact analysis under CEQA, VMT is generally expressed as VMT per capita for a typical weekday.*

Which projects are affected by SB 743?

Two types of projects, land use development projects and transportation infrastructure projects, are affected by SB 743.

- **Land Use Development Projects** – Development projects and area plans (e.g., General Plan) will continue to require a transportation impact analysis. However, transportation impact studies conducted as part of the CEQA process will now be required to base project impacts on VMT. According to CEQA guidance, municipalities will determine thresholds of significance to determine VMT-related impacts.

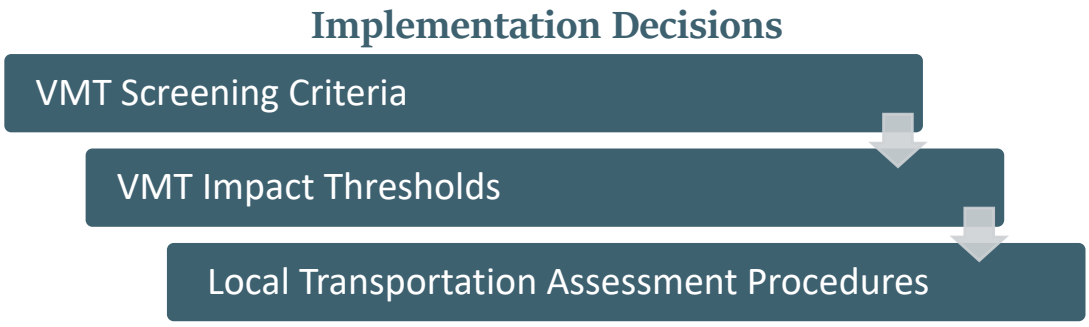
- **Transportation Infrastructure** – Prior to SB 743, transportation projects that had the potential to worsen vehicle delay, such as adding a pedestrian scramble phase, may result in a transportation impact under CEQA. With SB 743 in place, transportation projects that promote travel by non-auto modes are no longer considered to result in a transportation impact. CEQA guidance states transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant transportation impact. Roadway widening projects will need to consider induced travel demand resulting in new VMT.

Can Gardena still consider LOS?

SB 743 does not prevent a city from continuing to analyze LOS as part of development review, area plans, or on-going network monitoring, but LOS will no longer constitute the basis for CEQA impacts. Cities can still use vehicle LOS outside of the CEQA process if they determine it is an important part of their transportation analysis process.

What decisions does the City need to make to implement SB 743?

The implementation of SB 743 is a three-step process. First, the City will define the VMT screening criteria for use in transportation impact analyses. The City can decide to screen-out certain projects, such as small projects or projects located close to high quality transit, from needing a VMT impact analysis.



Next, the City will define its VMT impact thresholds. The City's impact thresholds should be consistent with the goals and policies outlined in the General Plan. Finally, the Local Transportation Assessment Procedures can be established. The City can determine if the historical methodologies and approach to traffic studies are appropriate as is, or if the City wants to recommend changes for evaluating the local transportation effects of a project.

SB 743 Implementation in Gardena

The City began the process of implementing SB 743 in Fall 2019. The process began by collecting baseline VMT data for the City and reviewing future VMT trends based on the regional Travel Demand Forecasting Model developed by the Southern California Association of Governments (SCAG) as part of their Regional Transportation Plan/Sustainable Communities Strategy. The City then used the VMT data to test pilot projects and considered options for the preferred VMT methodology, thresholds, and potential mitigations. The City has also prepared Local Transportation Assessment Procedures to inform the scope and analysis methodologies for future studies in the City.

Chapter 3 – Circulation Plan Update

How does SB 743 align with the City of Gardena General Plan?

The City of Gardena has identified the following goals and policies in its General Plan, which align with the anticipated outcomes of SB 743:

- Circulation Goal 1: Promote a safe and efficient circulation system that benefits residents and businesses, and integrates with the greater Los Angeles/South Bay transportation system.
- Circulation Goal 3: Promote alternative modes of transportation that are safe and efficient for commuters, and available to persons of all income levels and disabilities.
- Land Use Goal 1: Preserve and protect existing single-family and low/medium-density residential neighborhoods while promoting the development of additional high quality housing types in the City.
    - LU 1.5: Provide adequate residential amenities such as open space, recreation, off-street parking and pedestrian features in multifamily residential developments.
- Land Use Goal 4: Provide the highest quality of public facilities possible to meet the needs of the City's residents and businesses and promote the City's image and cultural heritage.
    - LU 4.3: Design public improvements to encourage pedestrian activity and access and to provide safe and convenient pedestrian circulation.

Recommended Changes to the City of Gardena General Plan

To bring the City of Gardena's General Plan Circulation Plan in line with updated state and county environmental guidance, the following deletions, additions, and edits are recommended. Also included are recommendations related to the State of California Complete Streets Act, and other minor changes to reflect new requirements such as elimination of the Congestion Management Plan (CMP).

Deletions

Page CI-1: Congestion Management Plan

The Los Angeles County Metropolitan Transportation Authority (MTA) is the agency responsible for planning and operating regional transit facilities and services in Los Angeles County. The MTA prepares the

Congestion Management Plan (CMP) mandated by State Law, which defines the countywide transportation network, establishes service level targets for network routes, and identifies strategies to reduce congestion. The MTA is required by law to monitor local implementation of all elements of the state-mandated CMP. Local jurisdictions are required to monitor arterial congestion levels, monitor transit services along certain corridors, implement and adopt a trip reduction and travel demand ordinance, implement a land use analysis program, and prepare annual deficiency plans for portions of the CMP system failing to meet the established service levels. In 2005, the MTA found that 88 jurisdictions, including the City of Gardena, were in conformance with the CMP.

Reason: The CMP no longer exists, as a sufficient number of cities have opted out of the program.

Page CI-12: Performance Criteria (including Table CI-2)

Evaluating the ability of the circulation system to service the City requires establishing suitable performance criteria. Performance criteria establish a desired LOS and a technical component that specifies how traffic forecast data could be used to measure criteria achievement. Table CI-2 presents the performance criteria.

Reason: LOS is no longer an allowed metric.

Page CI-18: Policy CI 1.1

To the extent feasible, maintain traffic flows at nonresidential, signalized intersections at LOS D, and maintain LOS E during peak rush hours.

Reason: LOS is no longer an allowed metric.

Page CI-18: Policy CI 2.1

To the extent feasible, maintain traffic flows at residential signalized intersections at LOS C, and maintain LOS D during peak rush hours.

Reason: LOS is no longer an allowed metric.

Additions

Page CI-1: New paragraph under Purpose

In addition, pursuant to the Complete Streets Act (Assembly Bill 1358) that was passed in 2008, the Circulation Plan must also plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the local context of the community. "Users of streets, roads, and highways" means bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors. Circulation Plan goals and policies have been updated to reflect multi-modal priorities for the City of Gardena.

Reason: State law required that the Circulation Plan address the Complete Streets Act.

Page CI-18: New policy under CI Goal 1

Prioritize long-term sustainability for the City of Gardena, in alignment with regional and state goals, by promoting infill development, reduced reliance on single-occupancy vehicle trips, and improved multi-modal transportation networks, with the goal of reducing air pollution and greenhouse gas emissions, thereby improving the health and quality of life for residents.

Reason: New policy to reflect change to VMT methodology.

Page CI-19: New policy under CI Goal 3

As public rights-of-way are repaved or otherwise improved, evaluate opportunities to enhance the quality and safety of the roadway by implementing new or improved walking, bicycling, or public transit infrastructure. If no walking, bicycling or public transit improvements are being provided, a report to council should provide an explanation for why such improvements are not needed along this roadway segment.

Reason: Policy to implement the Complete Streets Act.

Edits

Page CI-1:

The implementation of the policies in this Plan will enhance the development and maintenance of a transportation system that will support the safe and convenient movement of people throughout the City, regardless of mode. ~~maximize freedom of vehicles, transit, rail, bicycles and pedestrian movements.~~

Reason: Reflects change from LOS methodology.

Page CI-19: Update CI Goal 3

Develop Complete Streets to p~~P~~romote alternative modes of transportation that are safe and efficient for commuters, and available to persons of all income levels and disabilities. "Complete Streets" is the term given to streets that accommodate all forms of travel, including automobiles, bicycles, pedestrians, personal mobility devices, transit and freight in a safe environment on designated City streets.

Reason: Reflects the Complete Streets Act.

Future Opportunities in the City of Gardena General Plan

As a part of the next complete update to Gardena's Circulation Plan (as opposed to these minor changes to comply with State law), additional documentation of existing conditions, analysis, and development of goals and policies in support of state and regional environmental and transportation goals may be included. These elements can include:

- Documentation of existing transit and pedestrian facilities, and supportive facilities, such as bicycle parking
- Documentation of planned active transportation or transit facilities, such as those included in the South Bay Bicycle Master Plan
- Planned roadway classifications that include enhanced facilities for biking, walking and transit
- Additional goals and policies related to the reduction of single-occupancy vehicle mile traveled, including those related to development as part of the Land Use Element
- Exploration of Transportation Demand Management policies, programs, and strategies

Additional resources for Circulation Plan updates are provided by Metro and the Governor's Office of Planning and Research:

http://opr.ca.gov/ceqa/updates/sb-743/
https://www.metro.net/projects/countywide-planning/
http://opr.ca.gov/docs/Update_GP_Guidelines_Complete_Streets.pdf

Chapter 4 – CEQA Methodology, Thresholds, and Mitigation

This chapter provides an overview of the methodology for calculating VMT for land use projects and plans in the City, provides recommendations for the thresholds of significance, and discusses mitigation options for projects that are found to have a VMT impact. Implementation decisions were based upon discussion and direction from Gardena staff. In addition, analysis requirements for transportation projects are presented.

VMT Overview

The updated CEQA guidelines have a new section for determining the significance of transportation impacts (Section 15064.3). While OPR produced a Technical Advisory to help lead agencies think about the variety of implementation questions they face when shifting to a VMT metric, lead agencies must still make their own specific decisions about VMT methodology, thresholds, and mitigation. The implementation of new CEQA guidance in the City of Gardena required the following decisions:

1. **VMT Screening & Qualitative Review**: The first step is to determine when a VMT analysis is required. OPR recommends that projects be screened from a VMT analysis based on their size, location, or accessibility to transit. In addition, transportation projects that are not adding new travel lanes may be screened from further VMT analysis.

2. **VMT Analysis Methodology**: If the project is not screened from needing a VMT analysis, the City can use the regional travel demand model to estimate a project's VMT. OPR recommends that VMT be reported as "Home-Based VMT" per capita for residential projects and "Home-Based Work VMT" per employee for office projects. Total VMT or VMT per service population can be reported for large-scale retail projects or other project types, such as special event venues.

3. **VMT Impact Thresholds**: The City has discretion to develop and adopt their own, or rely on thresholds recommended by other agencies, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence. OPR recommends that projects exceeding 15 percent below the existing regional average VMT per capita or per employee may indicate an impact (i.e. projects with higher than regional VMT or 0-14% below regional VMT) .

4. **VMT Mitigation**: The types of mitigation that effect VMT are those that reduce the number of single-occupant vehicles generated by the site. This can be accomplished by changing the land uses being proposed or by implementing transportation demand management measures.

Each of these topics are discussed in further detail below. In addition, the table below presents the new CEQA criteria in comparison to the OPR Technical Advisory and summarizes what this means for the City.

Table 1: Summary of CEQA Guidance and OPR Technical Advisory

CEQA Criteria	OPR Technical Advisory	What this means for Gardena
VMT Screening & Qualitative Review		
If existing models or methods are not available to estimate VMT for the project being considered, a lead agency may analyze the project's VMT qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc.	Generally, qualitative analyses should only be conducted when methods do not exist for undertaking a quantitative analysis. OPR suggests screening for small projects, retail uses less than 50 KSF, and projects located in high quality transit areas.	Based upon the preferences of the City, many projects can likely be screened from completing a detailed VMT analysis and simply provide a qualitative analysis. Screening options are discussed in more detail below.
VMT Analysis Methodology		
A lead agency has discretion to choose the most appropriate methodology to evaluate a project's VMT, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use a model to estimate a project's VMT and may revise those estimates to reflect professional judgment based on substantial evidence.	OPR recommends reporting VMT as follows: Residential = Home-Based VMT per capita Office = Home-Based Work VMT per employee Retail = change in total VMT OPR also recommends using a regional travel demand model to estimate VMT.	VMT metrics for the City have been prepared using the SCAG regional travel demand forecasting model for baseline and future conditions (presented below). For projects that require a VMT analysis in the City, a SCAG model run can be performed by the transportation consultant.
VMT Impact Thresholds		
Lead agencies have discretion to develop and adopt their own, or rely on thresholds recommended by other agencies, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.	Residential: A project exceeding 15 percent below the existing regional average VMT per capita (i.e. higher than regional VMT or 0-14% below regional VMT) may indicate a significant transportation impact. Office: A project exceeding 15% below existing regional VMT per employee (i.e. higher than regional VMT or 0-14% below regional VMT) may indicate a significant transportation impact. Retail: A net increase in total VMT may indicate a significant transportation impact.	The City should consider its current and future VMT levels with planned land uses and policies in the General Plan in comparison to the regional average and set thresholds that are appropriate to the City.

For the purposes of VMT analysis shown throughout this report, the travel demand model for the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was used. The baseline model year is 2012. Figures shown throughout this report reflect the 2012 baseline conditions. For comparison purposes, 2040 future year model data is also shown, as well as interpolated 2020 VMT data. Proposed projects should be compared with interpolated data VMT thresholds reflecting the year in which the analysis is completed (e.g. pilot projects tested for this report were compared against 2020 interpolated data). A separate GIS and Excel data file reflecting SCAG model VMT thresholds for each Transportation Analysis Zone (TAZ) within the City of Gardena will be provided to City staff. TAZs are geographic polygons similar to Census block groups used to represent areas of homogenous travel behavior. The City of Gardena should plan to update their VMT metrics when new SCAG model files are available, which is generally every four years.

VMT Screening

VMT is heavily dependent on land use and location. For example, a development site located in an urban area will have lower VMT because people have more options to walk, bike and take transit or drive short distances to nearby destinations in comparison to a suburban development where most people drive longer distances for their everyday work and household needs. Therefore, OPR has provided guidance related to several opportunities for screening projects that would generate low VMT as described below.

The City of Gardena made the decision to pursue individual project screening. Staff worked to determine the parameters of the screening criteria that are appropriate for Gardena. In the tables under each implementation decision below, a screening recommendation has been made by the City.

Implementation Decision 1: Project Type Screening

Projects that generate less than 110 daily trips may be screened from conducting a VMT analysis (note that this level of trip generation would also not require a LOS analysis under current practice). Local serving retail projects less than 50 ksf may be presumed to have a less than significant VMT impact absent substantial evidence to the contrary. This is because local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel. In addition, affordable housing in infill areas can shorten commutes by providing housing closer to where people work, thereby reducing VMT, and do not require a VMT analysis.

OPR Recommendation	Staff Recommendation	What this means for Gardena
Screen the following project types from VMT analysis: - Projects that generate less than 110 daily trips - Local serving retail uses (<50 ksf) - 100 percent affordable residential development	Screen the following project types from VMT analysis: - Projects that generate less than 110 daily trips - Local serving retail uses (<50 ksf) - 100 percent affordable residential development Follow OPR guidance to screen by project size and type.	The City's recommendation means that projects that generate less than 110 daily trips, projects that include local serving retail uses less than 50 ksf, and 100 percent affordable residential development would not need to complete a VMT analysis. The City's Local Transportation Assessment Procedures would still be applicable to these projects.

The following table shows how many residential units fall under the 110 daily trip cap for three different residential land use types, based on the ITE Trip Generation Manual, 10th Edition. Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors). Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors).

Table 2: Residential Land Use, Trip Rates, and Daily Trip Cap

Residential Land Use	ITE Code	Daily Rate (trips per unit)	Number of Units under 110 Daily Trip Cap?
Single Family	210	9.44	11 units
Multi Family (low-rise)	220	7.32	15 units
Multi Family (mid-rise)	221	5.44	20 units

Source: ITE Trip Generation Manual, 10th Edition

Implementation Decision 2: Low VMT Area Screening

Residential and office projects located within a low VMT generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary.

The SCAG travel demand model is the most appropriate model to use for VMT forecasting within the City of Gardena. Since the model's VMT is utilized to generate the regional averages, use of the SCAG model is necessary to ensure that project VMT is evaluated consistently. Therefore, the SCAG model was used to measure VMT performance Citywide and for individual traffic analysis zones (TAZs) for Base Year 2012 and Future Year 2040 conditions, and interpolated to estimate 2020 conditions. The VMT metrics for the City of Gardena are discussed in further detail below as part of the screening for residential and office projects.

Low VMT areas for residential projects are defined as TAZs that generate VMT on a per capita basis that is at least 15% lower than the regional average. The VMT metrics for the City of Gardena in comparison to the SCAG regional average are presented in Table 3. As shown, the average Home-Based VMT per capita in the City is more than 20% below the regional average.

Table 3: SCAG Model Outputs for Region and City of Gardena (Home-Based VMT) – Residential Projects

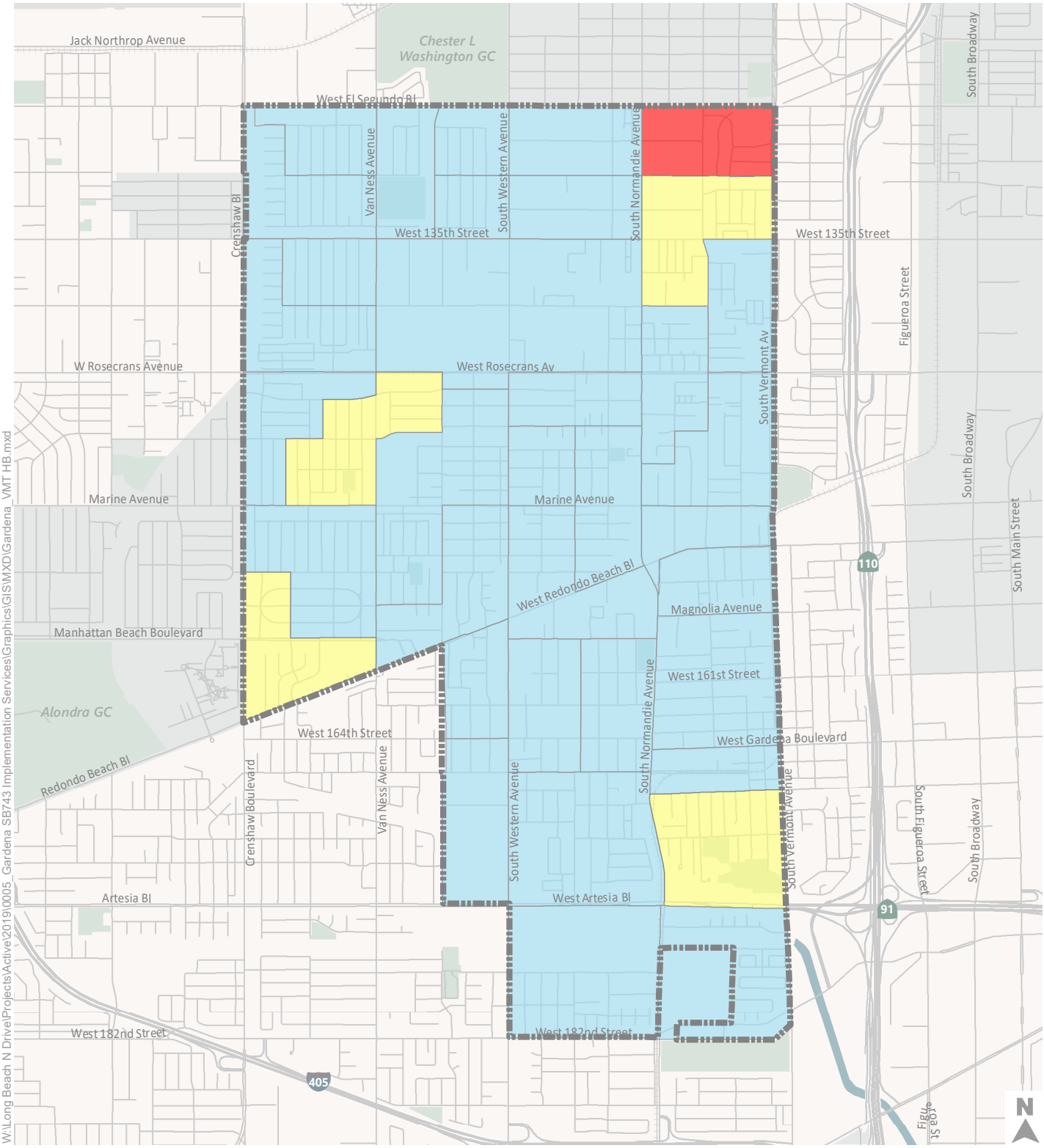
VMT Metrics	SCAG Region/ Gardena Average VMT		
	2012 Base Year Model	2020 Estimate	2040 Future Year Model
Regional Home-Based VMT per Capita	15.02	14.35	12.97
City Home-Based VMT per Capita	11.42	11.00	10.10
% Difference	-24%	-23%	-22%

Figure 1 illustrates the Home-Based VMT per capita in the City of Gardena by TAZ in comparison to the regional average for the 2016 SCAG RTP/SCS Model Base Year (2012). As expected, based on the Citywide VMT information in the above table, the majority of the TAZs have Home-Based VMT per capita at least 15% lower than the baseline regional average.

Figure 1 illustrates low VMT areas within the City of Gardena for the Base Year. Specifically, if a residential project is proposed in a TAZ that has VMT at least 15% lower than the regional average, the project would also be expected to generate VMT at least 15% lower than the regional average. The recommendation from staff is summarized below.

OPR Recommendation	Staff Recommendation	What this means for Gardena
Screen the following project type from VMT analysis: - Residential projects located in low VMT generating TAZs, defined as VMT per capita that is at least 15% lower than the baseline regional average.	Screen the following project type from VMT analysis: - Residential projects located in low VMT generating TAZs, defined as VMT per capita that is at least 15% lower than the baseline regional average.	The City's recommendation means that the majority of residential projects would not need to complete a VMT analysis. The City's Local Transportation Assessment Procedures would still be applied to residential projects.

It should be noted that SCAG updates its model every four years. We recommend the City's VMT screening maps be updated with each new model release to ensure that the areas designated as low-VMT generators compared to regional VMT reflect the best available data.



<-15% below SCAG Regional Average

0 to -15% below SCAG Regional Average

Higher than SCAG Regional Average

Figure 1

SCAG Model (2012)

Daily Residential Home Based VMT per Capita

Residential Projects

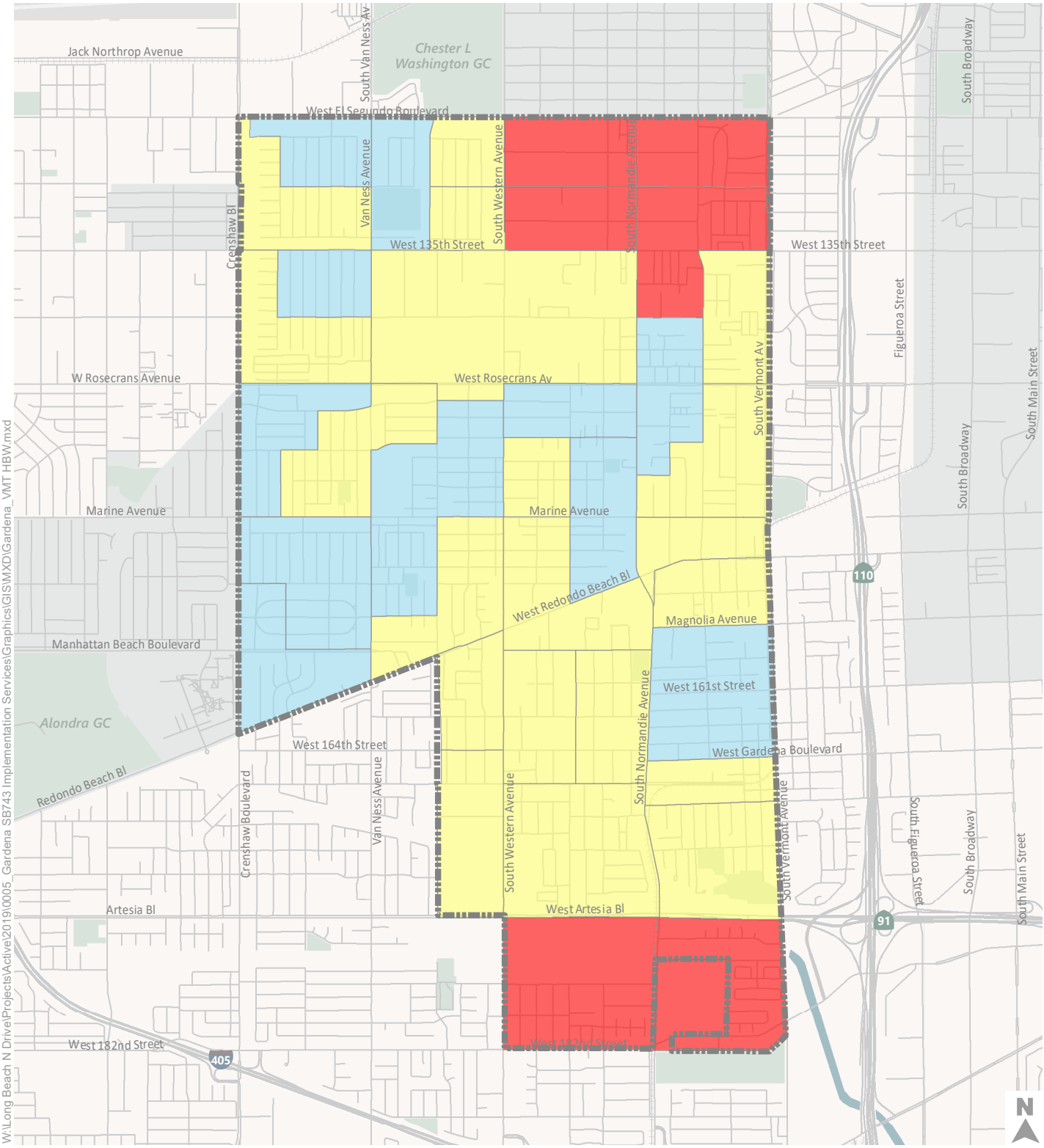
Low VMT areas for office projects are defined as TAZs that generate VMT on a per employee basis that is at least 15% lower than the regional average. The VMT metrics for the City of Gardena in comparison to the SCAG regional average are presented in Table 4. As shown, the average Home-Based Work VMT per employee is approximately 6% below the regional average.

Table 4: SCAG Model Outputs for Region and City of Gardena (Home-Based Work VMT) – Office Projects

VMT Metrics	SCAG Region/ Gardena Average VMT		
	2012 Base Year Model	2020 Estimate	2040 Future Year Model
Regional Home-Based Work VMT per Employee	19.00	17.23	13.90
City Home-Based Work VMT per Employee	17.78	16.22	12.84
% Difference	-6%	-6%	-8%

Figure 2 shows Home-Based Work VMT per employee for TAZs in the City of Gardena in comparison to the regional average during the Base Year. The average Home-Based Work VMT per employee in Gardena is lower than the regional average, but it is not more than 15% lower as recommended by OPR for screening in low VMT areas. However, several Gardena TAZs do qualify as low VMT areas for Home-Based Work VMT. If an office project is proposed in a TAZ that has VMT at least 15% lower than the regional average, the project would also be expected to generate VMT at least 15% lower than the regional average. The recommendation from staff is summarized below.

OPR Recommendation	Staff Recommendation	What this means for Gardena
Screen the following project type from VMT analysis: - Office projects located in low VMT generating TAZs, defined as VMT per employee that is at least 15% lower than the baseline regional average.	Screen the following project type from VMT analysis: Office projects located in low VMT generating TAZs, defined as VMT per employee that is at least 15% lower than the baseline regional average.	The City's recommendation means that office projects that fall within low Home-Based Work VMT areas would not need to complete a VMT analysis. The City's Local Transportation Assessment Procedures would still be applied to office projects.



<-15% below SCAG Regional Average

0 to -15% below SCAG Regional Average

Higher than SCAG Regional Average

Figure 2

SCAG Model (2012)

Daily Home Based Work VMT per Employee
Office Projects

Implementation Decision 3: Transit Proximity Screening

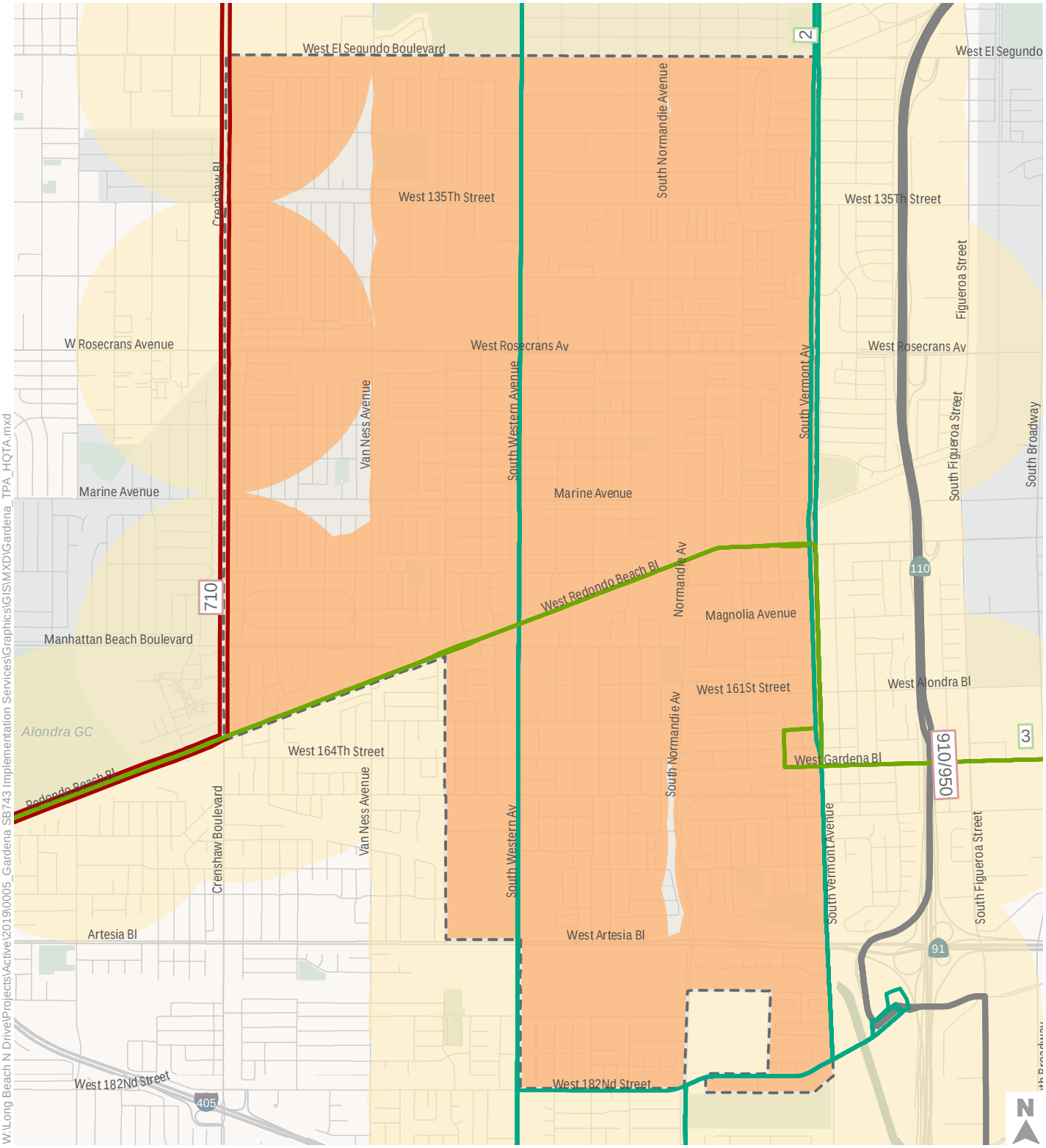
Projects located in proximity to high quality transit may also be exempt from VMT analysis. High-quality transit areas are defined as a ½ mile radius around an existing or planned major transit stop or station, or an existing stop along a high-quality transit corridor, which has fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. High-quality transit areas are subject to change, such as schedule or route adjustments, and screening should be based on actual service. These areas should be reviewed and confirmed during each screening process. Additional detail on high-quality transit is included in Appendix C.

Figure 3 shows areas that qualify as high-quality transit within the City of Gardena. Due to the many bus routes with 15-minute peak frequency, much of the City is located in proximity to high-quality transit. Based on OPR guidance, projects located in a high-quality transit area may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, this presumption may not be appropriate if the project:

- Has a Floor Area Ratio (FAR) of less than 0.75 (for office, retail, hotel and industrial projects) or less than 20 units per acre (for residential projects)
- Includes more parking for use by residents, customers, or employees than required by the City (unless additional parking is being provided for design feasibility, such as completing the floor of a subterranean or structured parking facility, or if additional parking is located within the project site to serve adjacent uses)
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the City)
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units

The staff recommendation is summarized below.

OPR Recommendation	Staff Recommendation	What this means for Gardena
Screen the following project types from VMT analysis: - Project is located in high-quality transit area and does NOT have the following characteristics: o Floor Area Ratio (FAR) < 0.75 o More parking than required by City o Inconsistent with the applicable RTP/SCS (as determined by the City) o Replaces affordable residential units with a smaller number of moderate- or high-income residential units	Screen the following project types from VMT analysis: - Project is located in high-quality transit area and does NOT have the following characteristics: o Floor Area Ratio (FAR) < 0.75 (for office, retail, hotel and industrial projects) or less than 20 units per acre (for residential projects) o More parking than required by City o Inconsistent with the applicable RTP/SCS (as determined by the City) o Replaces affordable residential units with a smaller number of moderate- or high-income residential units	The City's recommendation means that the majority of projects would not need to complete a VMT analysis. The City's Local Transportation Assessment Procedures would still be applied to residential projects.



Gardena

Frequent Transit Area in Gardena

Frequent Transit Area Near Gardena

Frequent Bus Routes

GTrans 2

GTrans 3

Metro Bus 710

Metro Silver Line 910/950

Figure 3

High-Quality Transit Areas

The full set of screening criteria are summarized in the following table. If a project meets the screening criteria, then no further VMT analysis is required.

Table 5: VMT Screening Options for Land Use Projects

Screening Category	Screening Criteria
Project type screening	Presumed less than significant impact for 100 percent affordable projects, local serving retail projects (defined as less than 50 ksf per OPR's Technical Advisory) and projects that generate less than 110 daily trips.
Low VMT area screening	Presumed less than significant VMT impact for projects located in low VMT generating traffic analysis zones (TAZs). These TAZs generate total daily VMT per capita or per employee that is 15% less than the baseline level for the region.
Transit proximity screening	Presumed less than significant VMT impact for projects located in high-quality transit areas and does not have the following characteristics: • Floor Area Ratio (FAR) < 0.75 (for office, retail, hotel and industrial projects) or less than 20 units per acre (for residential projects) • More parking than required by City • Inconsistent with the applicable RTP/SCS (as determined by the City) • Replaces affordable residential units with a smaller number of moderate- or high-income residential units

VMT Analysis Methodology

For projects that do not meet any of the screening criteria above, a VMT analysis would be required. The VMT analysis would rely on the best available data to inform trip generation and trip length estimates for the project uses. For land use plans (e.g., Specific Plan or General Plan) and projects consisting of typical residential, office, retail, hotel, or industrial land uses, the VMT analysis can be conducted using the SCAG model. For other project types, such as a conference center, or performing arts center, the VMT analysis should be customized to determine the unique trip generation and trip length characteristics of the proposed uses.

As required under current practice, the VMT analysis should consider the potential impacts of the project under both existing and future/cumulative conditions as follows:

- **Existing/Baseline Conditions**: Project-generated VMT should be estimated for the proposed land uses under existing/baseline conditions. VMT can be estimated using the SCAG regional travel demand model and should be reported as VMT per capita (residential projects), VMT per employee (office or employment-generating projects), or VMT per service population (all other land uses). For land use plans, VMT per service population or Total VMT can be used to determine potential impacts. For projects located on a street that forms the boundary of a TAZ, analysis may include a methodology to consider the average VMT for two adjacent TAZs, in accordance with City review and approval.

- **Cumulative Conditions**: A less than significant impact under Existing/Baseline conditions would also result in a less than significant cumulative impact as long as the project is also consistent with the SCAG RTP/SCS.

In some cases, the Project-effect on VMT should be estimated under cumulative conditions to determine if Citywide VMT would be higher/lower in the future with the project in place. This analysis would be applicable to large planning efforts that may result in changes to regional travel patterns. To evaluate the project's effect on VMT, the future year travel demand model should be updated to reflect the project and determine if the Citywide VMT increases or not with the project. The user may need to complete a redistribution of land use to ensure that the "no project" assessment and the "with project" assessment contain the same land use control totals for the City, especially if the project is large enough that it would affect land use absorption elsewhere.

Implementation Decision 4: VMT Impact Thresholds

CEQA Guidelines Section 15064.7, *Thresholds of Significance*, encourages lead agencies to develop and publish thresholds of significance. Pursuant to Section State CEQA Guidelines 15064.7(b), the City would be required to adopt threshold of significance for VMT by ordinance, resolution, rule or regulation through a public review process supported by substantial evidence. Table 6 presents the recommended

significance thresholds based on OPR guidance for land use plans and projects along with the recommended VMT analysis methodology discussed in detail above.

Gardena staff agreed to establish VMT impact thresholds based on OPR guidance as summarized in Table 6.

Table 6: VMT Analysis Methodology & Impact Thresholds Summary

Methods	Project Threshold	Cumulative Threshold
Land Use Plans (such as Specific Plans or the City's General Plan)		
Land use plans analyze impacts using SCAG model forecasts of VMT. For plans that propose a variety of land uses, estimate VMT/service population using the SCAG model. For plans focused on a singular land use, such as housing or commercial/office, report VMT/capita or VMT/employee.	A significant impact would occur if the VMT per service population for the land use plan (or per capita or per employee) exceeds 15% below the regional average (i.e. higher than regional VMT or 0-14% below regional VMT).	A significant impact would occur if the project threshold was exceeded or if the project is determined to be inconsistent with the RTP/SCS.
Land Use Projects		
VMT Analysis Required. Projects that do not meet screening criteria require a VMT[1] analysis using SCAG model for residential, office, retail, hotel, and industrial projects, and customized data to capture trip generation and trip length characteristics for unique projects, such as a conference center, or performing arts center.	A significant impact would occur if the project generates VMT[1] (per capita, per employee, or per service population) exceeds 15% below the regional average (i.e. higher than regional VMT or 0-14% below regional VMT). For regional retail projects, a significant impact would occur if the project results in a net increase in total VMT.	A significant impact would occur if the project threshold was exceeded or if the project is determined to be inconsistent with the RTP/SCS.
Transportation Projects		
Roadway Widening Projects. VMT analysis using SCAG model to estimate total VMT in City with project constructed, or calculate induced VMT based on lane mile elasticities. VMT analysis not required for intersection improvements, such as adding turn-lane.	A significant impact would occur if the project increased the baseline VMT in the City.	A significant impact would occur if the project caused total VMT in the City to be higher than the no build alternative under cumulative conditions, and if the project is determined to be inconsistent with the SCAG RTP/SCS.
Transportation projects with potential to decrease VMT. Examples include: pedestrian crossings, bicycle facilities, transit service and stops. A full list is included in Appendix B.	Presumed less than significant VMT impact for projects that encourage travel by modes other than driving.	Less than significant presumption applies under cumulative conditions as long as the project is consistent with the SCAG RTP/SCS.
Notes: 1. VMT refers to daily Home-Based VMT per capita for residential projects, Home-Based Work VMT per employee for office, industrial, and hotel projects, and Total VMT per service population for all other project types.		

OPR's Technical Advisory has identified the fifteen percent below regional average threshold based on research determining the VMT reduction needed in order to help the State achieve its climate goals. The California Air Resources Board has quantified the need for VMT reduction in order to meet the State's long-term climate goals and OPR sees reducing VMT to 15% below existing conditions as a reasonable threshold.

OPR guidance is also applicable for transportation projects. For roadway widening projects, a VMT analysis can be completed using the SCAG model to estimate total VMT in the City with the project constructed and induced VMT can be calculated based on lane mile elasticities. A significant impact would occur if the project increased the baseline VMT in the City. A VMT analysis is not required for intersection improvements, such as adding turn-lanes, or for transportation projects that have the potential to decrease VMT, such as pedestrian crossings, bicycle facilities, or transit service and stops. A full list of transportation projects for which VMT is not required is included in Appendix B.

Transportation Demand Management (TDM) Strategies

For projects with VMT impacts, it is important to have mitigation options available for implementation to remove or lower the impact. The types of mitigation that affect VMT are those that reduce the number of single-occupant vehicles generated by the site. This can be accomplished by changing the proposed land use or by implementing Transportation Demand Management (TDM) strategies. TDM strategies have been determined to be among the most effective VMT impact mitigators. TDM strategies are reductions available from certain types of project site modifications, programming, and operational changes.

The effectiveness of identified TDM strategies is based primarily on research documented in the 2010 California Air Pollution Control Officers Association (CAPCOA) publication, *Quantifying Greenhouse Gas Mitigation Measures* (CAPCOA, 2010). CAPCOA offers methodology based on preferred literature, along with methodology based on alternative literature, for each strategy. The strategies listed below are a sample of the options most effective in urban areas like Gardena.

As recent new development in Gardena has primarily been for-sale residential development, TDM measures that are best suited for a residential setting, and which could more easily be implemented by the developer at the time of construction and/or managed or initiated by a Homeowners Association (HOA) are noted in bold in Table 7.

Table 7: Sample Menu of Transportation Demand Management Mitigations

Active Transportation Strategies
1. Pedestrian Network Improvements
2. Bicycle Network Improvements
3. **Dedicate Land for Bike Trails**
4. Provide End of Trip Facilities
5. Bike Parking
6. Bikeshare Program
Parking Strategies
1. Reduce Parking Supply
2. Unbundle Parking
3. Market Price Public Parking
4. Residential Area Parking Permits
5. Price Workplace Parking
6. Employee Parking Cash-Out
Transit & Shared Ride Strategies
1. Rideshare Program
2. Transit Subsidies
3. School Carpool Program
4. Neighborhood or Private Shuttles
5. Implement School Bus Program
6. Park-and-Ride Lots
Other Commute Trip Reduction Strategies
1. Encourage Telecommuting and Alternative Work Schedules
2. Promotions and Marketing
3. Carshare Program
Development Strategies
1. Increase Density
2. Increase Diversity of Urban/Suburban Developments
3. Increase Transit Accessibility
4. Improve Design of Development
5. Required Contributions of Transportation Infrastructure Improvement Projects

Specific mitigation strategies need to be tailored to the project characteristics and their effectiveness needs to be analyzed and documented as part of the environmental review process to determine if impacts could be mitigated or if they would remain significant and unavoidable. Given that research on the effectiveness of TDM strategies is continuing to evolve, feasible mitigation measures should be considered based on the best data available at the time a project is being considered by the City. Additional detail on mitigation options is included in Appendix D. The City may also choose to reference TDM strategies compiled by SCAG as part of the Connect SoCal plan. SCAG's toolbox is available here: https://www.connectsocal.org/Documents/Proposed/pfConnectSoCal_Congestion-Management-Appendix.pdf

Pilot Project Testing

Seven projects in the City of Gardena were identified as "pilot projects" to outline the anticipated VMT analysis process. The following pilot projects were recently submitted to the City, and have been approved or are under review:

- 1515 West 178th Street – 114 Townhomes
- Normandie Courtyard, 1348 West 168th Street – 9 unit small lot subdivision
- KB Home Stonefield, 1017 West 141st Street and 14031 South Vermont Avenue – 63 townhomes
- Gardner Taxi Site, 2129 West Rosecrans Avenue – 105 townhomes and 5,000 square feet of commercial
- 3415 Marine Avenue – 54 townhomes and 10 live/work units
- Blackwood, 12850 Crenshaw Boulevard – 260 residential units
- Moneta Nursery, 13633 Vermont Avenue – 85 residential units

The following section provides a step-by-step guide of the analysis process.

Project Size Screening

The City recommendation screens projects from further VMT analysis if they generate fewer than 110 daily trips and have less than 50 ksf of retail uses. Of the pilot projects tested, only Normandie Courtyard (9 units) would generate fewer than 110 daily trips and be screened from VMT analysis based on size. For the project containing retail uses, the Gardner Taxi Site, the amount of retail is less than 50 ksf. Therefore, the retail component of the project would be screened from further VMT analysis; however, the remaining residential project uses (105 townhomes) would not be screened from further analysis based on size.

Low VMT Screening

The City recommendation screens residential projects from further VMT analysis if they are located in a low VMT generating TAZ, defined as VMT that is at least 15% lower than the 2020 baseline regional average. Five of the pilot projects are in low VMT areas of the City and would be screened from further VMT analysis. 1328 West 168th Street (this project has already been screened for project size) and 2415 Marine Avenue are not.

Transit Proximity Screening

The City recommendation screens projects from further VMT analysis if they are located in proximity to high-quality transit (with frequency of 15 minutes or better). All but one (2415 Marine Avenue) of the pilot projects fall within proximity to high-quality transit. Each of the projects that are near high-quality transit are also screened out due to project size or location within a low-VMT TAZ. In applying this screening

threshold, project density, parking, and consistency with RTP/SCS should be considered. For the purposes of this report, screening was based only on project location. Going forward, projects should be screened based on all criteria considerations.

VMT Analysis

Based on the City recommended screening criteria, all pilot projects except 2415 Marine Avenue would be screened out of having to complete VMT analysis. However, for the purposes of showing the results of the VMT analysis (if required), all seven land use pilot projects were analyzed to determine if they had anticipated VMT impacts according to OPR guidance and the City's recommended significance thresholds.

For residential projects, VMT is defined as measurement of Home-Based trips per capita, which reflects all trips that begin or end at a residential unit. The pilot projects were analyzed for potential VMT impacts by comparing their Home-Based VMT per capita to the regional average. The VMT metrics for each project were estimated from the baseline VMT trends for the project TAZ from the SCAG model. When comparing the Home-Based VMT per capita to the 2020 regional average, all but two projects (Normandie Courtyard and 2415 Marine Avenue) are below the 15% threshold and would not be considered to have VMT impacts (specific VMT metrics are provided in the pilot project summary below).

Cumulative Impacts

Lastly, the pilot projects were evaluated for potential cumulative impacts. This was done by looking at average project-level TAZ VMT (per capita or per employee) and determining whether VMT is anticipated to grow in the future. All of the pilot projects were tested for cumulative impacts and none were expected to grow in VMT at the project-level TAZ. In addition, the types of developed proposed are consistent with the SCAG RTP/SCS.

Transportation Projects

Transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant transportation impact. Project types that would likely lead to a measurable increase in vehicle travel generally include the addition of through lanes on existing or new roadways. All other projects are not likely to lead to a substantial or measurable increase in vehicle travel and should not require an induced travel analysis.

Pilot Project Summary

Each pilot projects' VMT analysis process is described below assuming that the recommended City screening criteria and impact thresholds are applied.

- 1515 West 178th Street – 114 Townhomes
    - Not screened from VMT analysis due to project size
    - Screened from further VMT analysis based on low VMT area for residential projects

  - Screened from VMT analysis due to project location near high-quality transit
  - Project residential VMT per capita estimate is 11.93 and 17% lower than regional residential VMT per capita (14.35)
    - No residential VMT impact (15% below regional average is threshold)
  - No cumulative impact; project does not exceed VMT threshold, future VMT is lower than baseline, and consistent with SCAG RTP/SCS
  - **Findings:** No VMT impact. This project meets two screening criteria and would not require a detailed VMT analysis.

- Normandie Courtyard, 1348 West 168th Street – 9 unit small lot subdivision

  - Screened from further VMT analysis due to project size
  - Not screened from further VMT analysis based on low VMT area
  - Screened from VMT analysis due to project location near high-quality transit
  - Project residential VMT per capita estimate is 12.83 and 11% lower than regional residential VMT per capita (14.35)
    - Yes, residential VMT impact (if City did not follow OPR recommended screening; VMT is not 15% below regional average threshold)
  - No cumulative impact; project does not exceed VMT threshold, future VMT is lower than baseline, and consistent with SCAG RTP/SCS
  - **Findings:** No VMT impact. This project meets two screening criteria and would not require a detailed VMT analysis.

- KB Home Stonefield, 1017 West 141st Street and 14031 South Vermont Avenue – 63 townhomes

  - Not screened from VMT analysis due to project size
  - Screened from further VMT analysis based on low VMT area for residential projects
  - Screened from VMT analysis due to project location near high-quality transit
  - Project residential VMT per capita estimate is 11.31 and 21% lower than regional residential VMT per capita (14.35)
    - No residential VMT impact (15% below regional average is threshold)
  - No cumulative impact; project does not exceed VMT threshold, future VMT is lower than baseline, and consistent with SCAG RTP/SCS
  - **Findings:** No VMT impact. This project meets two screening criteria and would not require a detailed VMT analysis.

- Gardner Taxi Site, 2129 West Rosecrans Avenue – 105 townhomes and 5,000 square feet of commercial

  - Not screened from residential VMT analysis due to project size (retail portion is screened out)
  - Screened from further VMT analysis based on low VMT area for residential projects
  - Screened from VMT analysis due to project location near high-quality transit
  - Project residential VMT per capita is 9.97 and 31% lower than regional residential VMT per capita (14.35)
    - No residential VMT impact (15% below regional average is threshold)
  - No cumulative impact; project does not exceed VMT threshold, future VMT is lower than baseline, and consistent with SCAG RTP/SCS
  - **Findings:** No VMT impact. This project meets two screening criteria and would not require a detailed VMT analysis.

- 3415 Marine Avenue – 54 townhomes and 10 live/work units

  - Not screened from VMT analysis due to project size
  - Not screened from further VMT analysis based on low VMT area
  - Not screened from VMT analysis due to location near high-quality transit
  - Project residential VMT per capita is 12.37 and 14% lower than regional residential VMT per capita (14.35)
    - Yes, potential residential VMT impact (15% below regional average is threshold)
  - Potential cumulative impact since project exceeds VMT threshold
  - **Findings:** Potential VMT impact. This project does not meet screening criteria and would require detailed VMT analysis.

- Blackwood, 12850 Crenshaw Boulevard – 260 residential units

  - Not screened from VMT analysis due to project size
  - Screened from further VMT analysis based on low VMT area for residential projects
  - Screened from VMT analysis due to project location near high-quality transit
  - Project residential VMT per capita is 11.56 and 19% lower than regional residential VMT per capita (14.35)
    - No residential VMT impact (15% below regional average is threshold)
  - No cumulative impact; project does not exceed VMT threshold and consistent with SCAG RTP/SCS
  - **Findings:** No VMT impact. This project meets two screening criteria and would not require a detailed VMT analysis.

- Moneta Nursery, 13633 Vermont Avenue – 85 residential units
    - Not screened from VMT analysis due to project size
    - Screened from further VMT analysis based on low VMT area for residential projects
    - Screened from VMT analysis due to project location near high-quality transit
    - Project residential VMT per capita is 11.31 and 21% lower than regional residential VMT per capita (14.35)
        - No residential VMT impact (15% below regional average is threshold)
    - No cumulative impact; project does not exceed VMT threshold and consistent with SCAG RTP/SCS
    - **Findings:** No VMT impact. This project meets two screening criteria and would not require a detailed VMT analysis.

Chapter 5 – Local Transportation Assessment Procedures

This section outlines the City's procedures for studying a project's effects on the transportation system. While CEQA requirements have changed, the City can continue to dictate the types of analysis to be conducted for land use and transportation projects, such as continuing to include LOS. While LOS would no longer constitute a CEQA impact, it can still be used to inform decision makers on the overall effects of a project, such as the need for intersection control or capacity changes.

Upon adoption of the new transportation impact thresholds to comply with CEQA under SB 743, the City would implement the following process for conducting transportation studies.

1. **Transportation Impact Analysis for CEQA**: Projects would first be reviewed to determine if there is a potential for significant transportation impacts. If the project does not meet the VMT screening criteria, a VMT analysis would be required to determine if the project exceeds the thresholds adopted by the City of Gardena. Following the VMT screening process and/or analysis, the City would make the determination on the appropriate environmental documentation needed based on all potential environmental impacts. If an EIR is required for transportation or excluded through the Initial Study, the VMT impact analysis, findings of significance and mitigation measures would be included in the Transportation section.

2. **Local Transportation Assessment**: The purpose of the Local Transportation Assessment is to provide an additional transportation-focused project review for the City of Gardena. However, this report would be prepared separately from the documentation required under CEQA. Similar to current practice, the City staff define the requirements for the Local Transportation Assessment. Local Transportation Assessments will be conducted in most cases, based on City staff recommendation.

Overview of Local Procedures

The City of Gardena has previously required transportation assessments for local development projects, with the level of analysis and methodology required dependent upon project size and scope. The City has previously requested trip generation and adjacent intersection volumes assessment, intersection LOS analysis, and in some cases, roadway segment LOS analysis. Gardena staff decided, for projects that meet certain criteria, to continue to analyze the local transportation effects of projects by studying a project's effect on LOS in the immediate vicinity of the project site. The procedures below generally maintain the

current process, with minor changes recommended to the study area and analysis methodology for signalized intersections.

The Project Trip Generation and Assignment methodology and, in some cases, the Cumulative Projects Review described below apply to projects of any size. All other sections apply only to projects expected to generate 50 peak-hour trips or more. Projects generating less than 50 peak hour trips will be required only to provide a memorandum summarizing trip generation and assignment, and cumulative project review.

Projects Generating Less Than 20 Peak Hour Trips

Project Trip Generation and Assignment (All Projects)

All projects requiring discretionary review/approval by the City require a memorandum summarizing project trip generation and assignment. Trip generation estimates should be based on the best available data. In some cases, data published by the Institute of Transportation Engineers provides reasonable trip generation estimates for land uses in the City. However, to the extent possible, trip generation should be based on local data. As part of this analysis, trips should be assigned to the local roadway network based on project location and local traffic patterns. Trip assignment figures are to be provided as part of the trip generation and assignment summary memorandum.

Projects Generating 20 – 49 Peak Hour Trips

Cumulative Projects Review

Projects generating between 20 and 49 peak hour trips should complete the project trip generation and assignment study described above. For projects with trip generation and assignment that results in 20 or more peak hour trips expected at any signalized intersection within the City of Gardena, a cumulative project review will also be required. The City will provide a list of related projects for this analysis. Cumulative project trip generation and assignment summaries should include cumulative vehicle volumes for all relevant projects.

Projects Generating 50+ Peak Hour Trips

Study Area

The study area shall be determined by the City based on the project's vehicle-trip generation. For projects that generate 50 or more peak hour vehicle-trips, a Local Transportation Assessment will be required. The study area should focus on roadways providing immediate access to the project site, such as the roadway(s) containing the project's primary driveway or secondary access point, or the intersection(s) immediately adjacent to the project site. Analyzed locations should primarily consist of major signalized intersections that are likely to be affected by the project. Unsignalized intersections should only be

studied if future signalization may be desirable by the City. Any intersection to which the proposed project is expected to add 50 peak hour trips (AM or PM) should be considered a study intersection.

Study Scenarios

Project's should continue to consider traffic operational effects under both existing and future (project opening year) conditions. The following scenarios should be included:

- Existing Conditions
- Opening Year Conditions
- Opening Year Plus Project Conditions

Additional cumulative analysis may be needed for larger Specific Plans or other similar projects.

Project Trip Generation

Trip generation estimates should be based on the best available data. In some cases, data published by the Institute of Transportation Engineers provides reasonable trip generation estimates for land uses in the City. However, to the extent possible, trip generation should be based on local data.

Signalized Intersection Operations

The Intersection Capacity Utilization (ICU) method of intersection capacity calculation has been the preferred methodology to analyze signalized intersections within the City of Gardena.

The City has decided to update its methodology for signalized intersections to reflect Highway Capacity Manual (HCM). The primary difference between the ICU and HCM methodologies is that ICU produces a volume to capacity (V/C) performance metric that corresponds to a LOS grade and the HCM produces a vehicle delay metric for LOS. The advantage to switching to the HCM for all intersections is that the methodology used to calculate vehicle delay and LOS is much more robust than the ICU. While the ICU method only considers the peak hour turning movement volumes and lane geometries in the V/C calculation, the HCM accounts for vehicular volumes, lane geometries, signal phasing, signal timings, bicycle and pedestrian volumes, upstream bottlenecks impacting travel flows, the likelihood that vehicles are able to make a right-turn on red, and the distribution of travel flows throughout the peak hour. In addition, the HCM is updated every few years by the Transportation Research Board whereas the ICU has not changed since 1980.

The following table documents the relationship between the vehicle delay and the LOS for signalized intersections.

Table 8: LOS Definitions for Signalized Intersections

LOS	Description	Average Control Delay Per Vehicle (Seconds)
A	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.	≤10.0
B	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 – 20.0
C	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.	>20.0 – 35.0
D	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.	>35.0 – 55.0
E	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.	>55.0 – 80.0
F	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.	>80.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

The City's analysis criteria for signalized intersection are as follows:

> *To the extent feasible, maintain traffic flows at nonresidential, signalized intersections at LOS E during peak rush hours.*
>
> *To the extent feasible, maintain traffic flows at residential signalized intersections at LOS D during peak rush hours.*

The City also has a goal of maintaining LOS D at nonresidential signalized intersection and LOS C at residential signalized intersections during off-peak hours, and off-peak analysis could still be required for unique projects. With a change to HCM, the performance criteria presented below has been modified to reflect delay instead of V/C.

Unsignalized Intersection Operations

The *Highway Capacity Manual (HCM)* is the preferred methodology to analyze unsignalized intersections. LOS ratings for all-way stop-controlled (AWSC) intersections are based on the average control delay expressed in seconds per vehicle. At two-way or side-street-controlled intersections, the average control delay is calculated for each minor-street stopped movement and the major-street left turns, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the

average of all movements in that lane. The average control delay for unsignalized intersections is correlated to a LOS designation as shown below.

Table 9: LOS Definitions for Unsignalized Intersections

LOS	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delay.	≤ 10.0
B	Short traffic delay.	> 10.0 to 15.0
C	Average traffic delays.	> 15.0 to 25.0
D	Long traffic delays.	> 25.0 to 35.0
E	Very long traffic delays.	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded.	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

The peak hour traffic signal warrant is defined in the California Manual on Uniform Traffic Control Devices (CA MUTCD). The MUTCD is published by the Federal Highway Administration and then adapted by Caltrans to provide uniform standards and specifications for all official traffic control devices in California. The peak hour traffic signal warrant is based on the traffic levels at each approach to an intersection to determine if the traffic volumes are high enough to warrant the installation of a traffic signal. The analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals and should not serve as the only basis for deciding whether and when to install a signal. City staff should make the ultimate determination on the appropriate types of improvements to implement (if any) for unsignalized intersections.

Neighborhood Streets

The City's policy for neighborhood traffic control is as follows:

> *Apply creative traffic management approaches to address congestion in areas with unique problems, particularly in the vicinity of schools, businesses with drive-through access and locations where business interface with residential areas.*

If a project has direct access, or is located adjacent to a neighborhood street, a residential assessment should be conducted. This assessment is conducted by estimating the number of project trips expected to travel on the neighborhood street segment on a daily basis and during the peak hour. Comparing traffic volumes under opening year baseline conditions to "plus project" conditions will allow the City to consider the need (if any) for relevant traffic calming solutions.

Active Transportation

Projects should also be reviewed for potential conflicts with adopted plans and policies related to active transportation, such as the South Bay Bicycle Master Plan. Any planned improvements in the immediate vicinity of the project site should be noted and incorporated into the project site plan as necessary.

Documentation

The methodology and analysis results based on the requirements above should be documented in a Local Transportation Assessment Report. This report will be reviewed by City staff and submitted to the decision-makers as part of the process.

Appendix A: CEQA Threshold Summary

City of Gardena California Environmental Quality Act (CEQA) Transportation Thresholds of Significance

Certain projects may qualify for VMT screening based on the criteria presented in Table A-1. Projects screened from requiring a VMT analysis would not have an impact under State CEQA Guidelines section 15064.3.

Table A-1: VMT Screening Options for Land Use Projects

Screening Category	Screening Criteria
Project type screening	Presumed less than significant impact for 100 percent affordable projects, local serving retail projects (defined as less than 50 ksf per OPR's Technical Advisory) and projects that generate less than 110 daily trips.
Low VMT area screening	Presumed less than significant VMT impact for projects located in low VMT generating traffic analysis zones (TAZs). These TAZs generate total daily VMT per capita or per employee that is 15% less than the baseline level for the region.
Transit proximity screening	Presumed less than significant VMT impact for projects located in high-quality transit areas and does not have the following characteristics: • Floor Area Ratio (FAR) < 0.75 (for office, retail, hotel and industrial projects) or less than 20 units per acre (for residential projects) • More parking than required by City • Inconsistent with the applicable RTP/SCS (as determined by the City) • Replaces affordable residential units with a smaller number of moderate- or high-income residential units

Consistent with State CEQA Guidelines section 15064.3, the City of Gardena has adopted the thresholds of significance set forth in Table A-2 to guide in determining when a project will have a significant transportation impact.

Table A-2: VMT Analysis Methodology & Impact Thresholds Summary

Methods	Project Threshold	Cumulative Threshold
Land Use Plans (such as Specific Plans or the City's General Plan)		
Land use plans analyze impacts using SCAG model forecasts of VMT. For plans that propose a variety of land uses, estimate VMT/service population using the SCAG model. For plans focused on a singular land use, such as housing or commercial/office, report VMT/capita or VMT/employee.	A significant impact would occur if the VMT per service population for the land use plan (or per capita or per employee) exceeds 15% below the regional average (i.e. higher than regional VMT or 0-14% below regional VMT).	A significant impact would occur if the project threshold was exceeded or if the project is determined to be inconsistent with the RTP/SCS.
Land Use Projects		
VMT Analysis Required. Projects that do not meet screening criteria require a VMT[1] analysis using SCAG model for residential, office, retail, hotel, and industrial projects, and customized data to capture trip generation and trip length characteristics for unique projects, such as a conference center, or performing arts center.	A significant impact would occur if the project generates VMT[1] (per capita, per employee, or per service population) exceeds 15% below the regional average (i.e. higher than regional VMT or 0-14% below regional VMT). For regional retail projects, a significant impact would occur if the project results in a net increase in total VMT.	A significant impact would occur if the project threshold was exceeded or if the project is determined to be inconsistent with the RTP/SCS.
Transportation Projects		
Roadway Widening Projects. VMT analysis using SCAG model to estimate total VMT in City with project constructed, or calculate induced VMT based on lane mile elasticities. VMT analysis not required for intersection improvements, such as adding turn-lane.	A significant impact would occur if the project increased the baseline VMT in the City.	A significant impact would occur if the project caused total VMT in the City to be higher than the no build alternative under cumulative conditions, and if the project is determined to be inconsistent with the SCAG RTP/SCS.
Transportation projects with potential to decrease VMT. Examples include: pedestrian crossings, bicycle facilities, transit service and stops. A full list is included in Appendix B.	Presumed less than significant VMT impact for projects that encourage travel by modes other than driving.	Less than significant presumption applies under cumulative conditions as long as the project is consistent with the SCAG RTP/SCS.
Notes: 1. VMT refers to daily Home-Based VMT per capita for residential projects, Home-Based Work VMT per employee for office, industrial, and hotel projects, and Total VMT per service population for all other project types.		

Appendix B: Transportation Projects Not Requiring VMT Analysis

According to OPR guidance (April 2018 Technical Advisory), 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, include:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity
- Roadside safety devices or hardware installation such as median barriers and guardrails
- Roadway shoulder enhancements to provide "breakdown space" - dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Conversion of existing general purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel
- Addition of a new lane that is permanently restricted to use only by transit vehicles
- Reduction in number of through lanes
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., high-occupancy vehicles [HOV], high-occupancy toll [HOT], or trucks) from general vehicles
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow

- Timing of signals to optimize vehicle, bicycle or pedestrian flow
- Installation of roundabouts or traffic circles
- Installation or reconfiguration of traffic calming devices
- Adoption of or increase in tolls
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase
- Initiation of new transit service
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Removal or relocation of off-street or on-street parking spaces
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)
- Addition of traffic wayfinding signage
- Rehabilitation and maintenance projects that do not add motor vehicle capacity
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve nonmotorized travel
- Installation of publicly available alternative fuel/charging infrastructure
- Adding of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor

Appendix C: High-Quality Transit Areas

CEQA Section 15064.3 (b)(1) states that "Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact." In December 2019, transit service in Gardena was assessed for the purposes of identifying high-quality transit areas – that is, stops and stations served by transit that ran at 15-minute headways or better during peak morning and afternoon commute periods. Due to variability in transit service and the possibility of future route or schedule change, high-quality transit areas should be reassessed in the screening of each proposed project.

Gardena Transit Screening Areas Methodology

The OPR Technical Advisory on Evaluating Transportation Impacts in CEQA recommends screening thresholds to quickly identify projects that are expected to have a less-than-significant impact on VMT, without full VMT analysis. One category of screening is the Presumption of Less Than Significant Impact Near Transit Stations.

OPR defines "near transit stations" as with in a half mile of (1) a major transit stop or (2) an existing stop along a high quality transit corridor. A major transit stop, as defined in by Resources Code, § 21064.3 includes multiple criteria, but the element relevant to generating this transit screening area is, "a site containing an existing rail transit station…" A high-quality transit corridor, as defined by Pub. Resources Code, § 21155, is "a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours."

Three transit agencies serve Gardena (1) GTrans, (2) LA Metro, and (3) Torrance Transit. While the Metro Green Line is close to Gardena, both stations closest to Gardena, Crenshaw/I-105 and Vermont/Athens, are more than a half mile outside the City boundary.

To select the high-quality transit corridors bus service for the routes in Gardena and within a half mile of Gardena was summarized for the peak periods. For this analysis, the AM Peak was defined as 6:00 to 9:00 AM and the PM Peak was defined as 3:00 to 6:00 PM. Bus stops with four or more stops per hour during both AM and PM Peak were selected. Based on the identified bus stops, a list of frequent transit routes was compiled, including the following:

- GTrans 2

- GTrans 3
- Metro 710
- Metro 910 – Silver Line
- Metro 206
- Metro 204
- Metro 754

Finally, a half mile area was selected around all the stops on the routes listed above to produce the transit screening areas.

Appendix D: VMT Mitigation Options Detail

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
Active Transportation Strategies												
3.2.1	Pedestrian Network Improvements	Pedestrian network improvements around and within the project site encourage people to walk to and within the project site. VMT reductions are due to the provision of complete pedestrian networks and only apply if located in an area that has a less robust sidewalk network. Generally, the developer can make the project site more accessible, connected, and welcoming with pedestrian network improvements, such as removing physical barriers, adding pedestrian crossing infrastructure, creating network links, and widening sidewalks.	Neighborhood/ Site Enhancement	0% - 2%	✓	✓	✓	✓			✓	✓
3.2.2	Bicycle Network Improvements	This strategy only applies to bicycle facilities that provide a dedicated lane for bicyclists or a completely separated right-of-way for bicycles and pedestrians. VMT reductions are primarily due to expansion of bike networks in urban areas. For individual projects, the citywide (or similar scale) bicycle network is enhanced such that a building entrance or bicycle parking is within 200 yards walking or bicycling distance from a bicycle network that connects to at least one of the following: - at least 10 diverse uses; - a school or employment center, if the project total floor area is 50% or more residential; - or a bus rapid transit stop, light or heavy rail station, commuter rail station, or ferry terminal. All destinations must be 3-mile bicycling distance from project site. Include educational campaigns to encourage bicycling.	Neighborhood/ Site Enhancement	0.25% - 1%	✓	✓	✓	✓			✓	✓
3.2.9	Dedicate Land for Bike Trails	Larger projects may be required to provide for, contribute to, or dedicate land for off-site bicycle trails linking the project to designated bicycle commuting routes. This measure should be grouped with improving the connectivity of a development to the surrounding street network.	Neighborhood/ Site Enhancement	Grouped strategy with Improve Design of Development (3.1.9)	✓	✓	✓	✓			✓	✓

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
3.4.5	Provide End of Trip Facilities	Non-residential projects can provide commuters facilities to support bicycling, such as showers, secure bicycle lockers, and changing spaces. These facilities can provide the amenities needed to transition to/from the work day and to securely store bikes.	Commute Trip Reduction	Grouped Strategy with Implement Commute Trip Reduction Program (3.4.1 & 3.4.2) and Provide Ride-Sharing Program (3.4.3)	✓	✓		✓	✓	✓	✓	
3.2.6 3.2.7	Bike Parking	Secure short-term and long-term bicycle parking can be provided for residents, employees, and visitors. Secure bicycle parking consists of the developer providing lockers, a secure bicycle room, or a bicycle station on-site. Secure bicycle parking should have coverage from the elements and should restrict access to only those parking in the facility.	Neighborhood/ Site Enhancement	Grouped strategy with Improve Design of Development (3.1.9)	✓	✓	✓	✓	✓		✓	
3.4.12	Bikeshare Program	A bikeshare system consists of bicycles available to individuals for short, one-way trips. Bikeshare can be implemented on a small scale, consisting of just a few bikes paid for and managed by property management or an HOA, or can be part of a citywide or regional program. A bikeshare program alone provides negligible reductions in VMT rates and is normally implemented in a bundle with other bicycle infrastructure strategies, such as the buildout of a bikeway network.	Commute Trip Reduction	Grouped strategy with Bike Lane Street Design (3.2.5) and Improve Design of Development (3.1.9)	✓	✓	✓	✓	✓	✓	✓	✓
Parking Strategies												
3.3.1	Reduce Parking Supply	Parking supply refers to the total number of parking spaces provided at a residential site. The baseline parking level should reflect typical conditions at the project site rather than code requirements. The City can also reduce on-site parking supply in conjunction with an on-street residential parking permit program; this approach would require on-street parking management and monitoring. Parking supply reductions work best in the urban context, but the degree of effectiveness varies depending on the levels of alternative transit modes and the density of the project and surrounding areas.	Parking Policy/ Pricing	5% - 12.5%		✓	✓				✓	✓

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
3.3.2	Unbundle Parking	Unbundling parking separates the price of parking from the price of the property so that buyers/renters must purchase/rent parking in addition to the property. Thus, the cost of parking is paid for by those who use it, rather than the community in general. This strategy applies to residential land uses. For employment uses, see Price Workplace Parking (3.4.14) and Employee Parking Cash-Out (3.4.15).	Parking Policy/ Pricing	2.6% - 13%		✓	✓		✓		✓	
3.3.3	Market Price Public Parking	Implementing market-price public parking is applicable for on-street parking near a central business district and employment or retail centers. This strategy is only effective if spillover parking (i.e. people parking in free/residential areas) is managed, such as through residential area permits. Market-price public parking can encourage people to park once and walk between destinations and may encourage enough mode-shift to justify increased transit service to the district. The VMT reduction applies to VMT from visitor/customer trips only.	Parking Policy/ Pricing	2.8% - 5.5%	✓	✓		✓				✓
3.3.4	Residential Area Parking Permits	Residential area parking permits require residents to purchase permits for long-term use of on-street parking in order to reduce spillover from surrounding sites, such as commercial areas or transit stations.	Parking Policy/ Pricing	Group strategy with Limit Parking Supply (3.3.1: 5%-12.5%), Unbundle Parking (3.3.2: 2.6%-13%), or Market Rate On-Street Parking Pricing (3.3.3: 2.8%-5.5%)	✓	✓	✓	✓				✓
3.4.14	Price Workplace Parking	Pricing workplace parking may include charging for parking, implementing above market rate pricing, validating parking only for invited guests, not providing employee parking and transportation allowances, and educating employees about available alternatives. Though similar to the Employee Parking "Cash-Out" strategy, this strategy focuses on implementing market rate and above market rate pricing to provide a price signal for employees to consider alternative modes for their work commute. The effectiveness of this strategy depends on the availability of alternative modes.	Commute Trip Reduction	0.1% - 19.7%	✓	✓		✓	✓	✓		✓

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
3.4.15	Employee Parking Cash-Out	Employee Parking Cash-Out programs require that employees who choose not to drive to work be paid the cash equivalent of a parking space that their employer would otherwise have to purchase. This incentivizes employees to take transit, bike, walk, or carpool to work, thereby reducing commute VMT. This strategy only applies at workplace locations where office tenants must rent parking spaces separately from their office space.	Commute Trip Reduction	0.6%-7.7%		✓		✓	✓	✓		
Transit & Shared Ride Strategies												
3.4.3	Rideshare Program	A rideshare program includes TDM strategies designed to increase average vehicle occupancy by encouraging carpooling and vanpooling. Carpooling and vanpooling can be encouraged through programmatic features, such as a platform or database that matches potential riders (e.g. Zimride), and through incentives, such as payments to individuals who participate in each mode.	Commute Trip Reduction	1% - 15%	✓	✓	✓	✓	✓	✓	✓	✓
3.4.4	Transit Subsidies	Transit subsidies are direct payments to individuals for use of public transit. Using this measure requires a rough estimate of how much transit would cost the typical individual at the location and what percentage of that cost would be covered through subsidies. This measure may be best suited for affordable housing projects where subsidies can be provided in combination with other benefits, such as those for low-income residents; these programs may be grant funded. The effect of transit subsidies depends on the dollar amount of the subsidy, the density of the community that the subsidy is implemented within, and the proportion of individuals that are eligible for the program. Three updated VMT reduction ranges are provided, based on the form that the subsidies take: 1) Reduction in vehicle trips in response to reduced cost of transit use, assuming that 10-50% of new bus trips replace vehicle trips; 2) Reduction in commute trip VMT due to employee benefits that include transit 3) Reduction in all vehicle trips due to reduced transit fares system-wide, assuming 25% of new transit trips would have been vehicle trips.	Commute Trip Reduction	0.3% - 20%	✓	✓	✓	✓	✓	✓	✓	✓

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
3.4.10	School Carpool Program	School carpool programs function similarly to ridesharing programs. School carpool programs can fill in service gaps for public schools (e.g. students cannot walk or bike but do not meet requirements for the school bus) and provide options for students attending private schools. The VMT reduction applies to school dropoff/pickup VMT only, which is typically no more than 15% of average daily household VMT; the share of household VMT that is school trips can be found in a regional travel model or MPO report.	Commute Trip Reduction	7.2% - 15.8%		✓	✓		✓			✓
3.4.11	Neighborhood or Private Shuttles	Private neighborhood or project shuttle implementation consists of new service that is provided only for residents, employees, or visitors affiliated with the project. Shuttles alone provide negligible reductions in VMT rates, and shuttles are normally implemented in a bundle with other transit infrastructure improvements. Private shuttles can consist of either point-to-point shuttles or last-mile shuttles connecting with major transit hubs. VMT reductions vary depending on how strategy is implemented: 1) Reduction in commute vehicle trips due to implementing employer-sponsored vanpool and shuttle programs; 2) Reduction in commute vehicle trips due to vanpool incentive programs; 3) Reduction in commute vehicle trips due to employer shuttle programs	Commute Trip Reduction	0.3% - 13.4%	✓	✓	✓	✓	✓	✓	✓	✓
3.4.13	Implement School Bus Program	A project developer or manager would work with the school district to restore or expand school bus services in the project area and local community. As more families participate in the school bus program, more VMT would be reduced. VMT reduction applies to school trip VMT only.	Commute Trip Reduction	38% - 63%		✓	✓		✓		✓	✓

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
3.6.4	Park-and-Ride Lots	Park-and-Ride lots are placed near transit stops/hubs and High Occupancy Vehicle lanes so that people can drive to the lot, park, and complete the remainder of their trip in a carpool/vanpool or on public transit.	Road Pricing Management	Grouped Strategy with Area/Cordon Pricing (3.6.1), Employer-Sponsored Vanpool (3.4.11), Ride-Sharing Programs (3.4.3), Transit System Improvements (3.5.1-3.5.6)	✓	✓	✓	✓				✓
Other Commute Trip Reduction Strategies												
3.4.6	Encourage Telecommuting and Alternative Work Schedules	Telecommuting and alternative work schedules reduce the time spent commuting and/or the number of commute trips per week. Telecommuting is when employees work remotely, typically at home. Alternative work schedules take the form of compressed work weeks (e.g. 9/80) that allow workers to reduce the number of commute trips they make.	Commute Trip Reduction	0.07% - 5.5%		✓	✓	✓	✓	✓		
3.4.7	Promotions & Marketing	Commute trip reduction marketing programs are part of a traditional TDM program and often focus on advertising non-driving options to individuals. This may include direct outreach, help with trip planning, and development of promotional materials. This strategy can include the deployment of products, such as TransitScreen, that provide real-time transit and other transportation information in common spaces of a development. This strategy's efficacy is affected by the level of investment in the program, the staff involved, and the other measures implemented. Updated VMT reductions from this strategy vary depending on how it is implemented: 1) Vehicle trips reduction due to CTR marketing; 2) Reduction in VMT from institutional trips (e.g. university or large employer) due to targeted behavioral intervention programs	Commute Trip Reduction	0.8% - 4%	✓	✓	✓	✓	✓	✓	✓	✓

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
3.4.9	Carshare Program	A carshare program provides ad hoc short-term car rental services, such as services provided by ZipCar, Car2Go, and Gig. Vehicles are parked in parking spaces on or near the site and available for members to use on an hourly or per-mile basis. A carshare program should be paired with designated carshare parking spots for maximum effectiveness. A carshare program serves different purposes based on the land use. Transit station-based programs focus on providing the "last-mile" solution and link transit with commuters' final destinations. Residential-based programs work to substitute entire household based trips. Employer-based programs provide a means for business/ day trips for alternative mode commuters and provide a guaranteed ride home option. VMT reductions assume 1%-5% penetration rate of carsharing use among the target population.	Commute Trip Reduction	0.4% - 0.7%	✓	✓	✓	✓	✓	✓	✓	✓
Development Strategies												
3.1.1	Increase Density	Density is typically measured in terms of jobs, persons, or dwelling units per unit area. Increasing density can decrease the distance people travel and the transportation mode they use to get to a destination (e.g. people can replace a vehicle trip with a walking, biking, or transit trip). Increasing residential density is associated with lower VMT per capita. Increased residential density in areas with high jobs access may have a greater VMT change than increases in regions with lower jobs access. The range of VMT reductions assumes that residential density is increased between 10% and 50% over existing conditions.	Land Use/ Location	0.8% - 30%	✓	✓	✓	✓			✓	✓
3.1.3	Increase Diversity of Urban/ Suburban Developments	Increasing the diversity of urban and suburban developments includes placing different land uses near each other and in the same building (i.e. mixed-use). Increasing diversity of land use minimizes the number and length of vehicle trips as people can reach multiple destinations in one trip or walk/bike for shorter trips. In the urban context, a single building should combine multiple uses and should encourage non-auto modes of transport. Increased diversity of urban developments can lead to between a 0% to a 12% decrease in VMT. In the suburban context, a mix of different uses, like residential, retail, office, or open space, should exist on site or within ¼ of a mile of the site. Increased diversity of suburban developments can lead to between a 0.3% to a 4% decrease in VMT.	Land Use/ Location	9%-30%	✓	✓	✓	✓			✓	✓

CAPCOA Transportation Demand Management Strategy Source: Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association, 2010					Land Use Applicability				Implementation Body			
CAPCOA ID	Name	Description	Category (Applicable Trip Type)	VMT Reduction Estimate	Retail	Mixed-Use	Residential	Office	Property Manager/HOA	Commercial Tenant	Developer	City or Other Public Agency
3.1.5	Increase Transit Accessibility	Increasing transit accessibility encourages transit use to replace vehicle trips. This measure is primarily relevant for urban and suburban contexts but can be applicable for rural contexts if a development is adjacent to a commuter rail station with convenient rail service to a major employment center. Increasing transit accessibility can take two forms: 1) Locate near transit: Locate developments within a 5-10 minute walk (approximately 0.25 mile) from a high-frequency transit stop. 2) Create Transit-Oriented Development: Transit accessibility is enhanced by nearby mixed-use developments, streets with traffic-calming design, and parking management. To qualify for this reduction, the project must include a mix of land uses, manage access to parking, and be designed to encourage walking and cycling. Most of the development's residents and workers must be within a 5-10 minute walk (or roughly 0.25 mile from stop to edge of development) of fast, frequent, and reliable transit service connecting to a high percentage of regional destinations.	Land Use/ Location	0.5% - 24.6%	✓	✓	✓	✓			✓	✓
3.1.9	Improve Design of Development	Improving development design to improve walkability and connectivity will encourage people to walk to and within a development. Walkability and connectivity can be assessed by measuring average block size, number of intersections per square mile, sidewalk coverage, building setbacks, street widths, pedestrian crossings, and presence of street trees. This applies only to large developments with significant internal street structure.	Land Use/ Location	3% - 21.3%	✓	✓	✓	✓			✓	✓
3.6.3	Required Contributions to Transportation Infrastructure Improvement Projects	Requiring projects to contribute a proportionate amount (i.e. "fair share") to transportation infrastructure improvements projects would fund traffic-flow improvements or multi-modal improvement projects, such as improving walking and biking facilities. Contributions could be right-of-way dedications, capital improvements, and easements.	Road Pricing Management	Grouped Strategy with Improve Traffic Flow (3.6.2) and Transit System Improvements (3.5.1-3.5.6)	✓	✓	✓	✓				✓