The City of SAN DIEGO

Transportation Study Manual (TSM)

DATE: 09/29/2020

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Preface

This manual is intended to describe the required transportation analysis requirements for land development, roadway projects, and specific plans in the City of San Diego. The City has updated the manual several times as follows:

- 1987: The original traffic impact study requirements for projects subject to CEQA were outlined in Department Instructions.
- 1993: The City, with the assistance of a volunteer task force of traffic engineering consultants, produced the Traffic Impact Study Manual.
- 1998: The City updated the Traffic Impact Study Manual to reflect revisions to the City's Land Development Code, improvements in capacity analysis techniques, and consistency with the City's California Environmental Quality Act (CEQA) review process.
- 2020: The City changed the Traffic Impact Study Manual to this Transportation Study Manual (TSM or Manual) to implement the required shift from a level of service (LOS) analysis to a vehicle miles travelled (VMT) CEQA analysis as a result of Senate Bill 743 and to better address all transportation modes. New requirements are provided for both a project's CEQA transportation impact analysis and Local Mobility Analysis (LMA).

Introduction

PURPOSE

The purpose of this Manual is to provide guidance to consultants on how to prepare transportation studies in the City of San Diego. It is intended to ensure consistency among consultants, predictability in preparation, consistency among reviewers, and conformance with all applicable City and State regulations, including CEQA.

Transportation studies are intended to identify the transportation impacts of proposed development projects and to determine the need for any improvements to the adjacent and nearby road system to achieve acceptable mobility for vehicles, bicyclists, pedestrians, and transit.

This Manual provides guidance for:

- The City's CEQA significance thresholds, screening criteria, and methodology for conducting the transportation vehicle miles travelled (VMT) analysis.
- Preparation of Local Mobility Analyses (LMA) to identify any off-site infrastructure improvements in the project vicinity that may be triggered with the development of the project, as well as to analyze site access and circulation and evaluate the local multi-modal network available to serve the project.

OVERVIEW OF PROCESS

Who Is Involved?

Preparer Qualification Requirements

Transportation Studies must be prepared under the supervision of a qualified, registered Traffic Engineer who has specific training and experience in preparing transportation analysis. The Traffic Engineer must possess the ability to forecast and analyze transportation data, and evaluate transportation needs for developments and the roadway system. All transportation studies must be stamped by a California Registered Traffic Engineer or equivalent as approved by the Development Services Department's Senior Traffic Engineer.

City Review and Other Agency Coordination

Transportation studies for land development projects will be reviewed by the Development Services Department's Transportation Development Section. If a project will affect another jurisdiction, such as Caltrans, SANDAG, MTS, NCTD, other cities, or San Diego County, coordination with that jurisdiction may be required. City of San Diego staff can provide guidance and contact information for other jurisdictions.

Ethics and Objectivity

Although study preparers and reviewers will sometimes have different perspectives, all parties involved in the process should adhere to established engineering ethics and conduct all analysis and reviews objectively and professionally.

Summary of Process

Outline of Study Preparation and Review Process

The following summarizes the typical process for completing a transportation study in the City of San Diego:

- **Step 1 – Study Initiation:** The applicant's consultant will complete the Project Information Form (PIF), which describes the project location and site plan, provides trip generation estimates (trip distribution/assignment), reviews transportation screening criteria, and identifies study requirements.
- **Step 2 – Confirm Study Requirements:** The completed PIF is submitted to the City of San Diego for review and comment. The City will either provide a letter confirming the study requirements or revise the requirements in the PIF. The applicant's consultant may request a meeting to clarify the PIF and establish requirements.
- **Step 3 – Conduct Study/Submit Draft:** The applicant's consultant will prepare the Transportation Study consistent with the requirements established in Steps 1 and 2 and will submit a draft to the City. The City will provide written comments on the draft study.
- **Step 4 – Finalize Study:** The applicant's consultant will address all City comments and produce a Final Transportation Study. A record identifying how each comment was addressed shall also accompany the Final Transportation Study.

During this process, the applicant's consultant may request a meeting with City staff to clarify study requirements or comments received on the draft study. It is critical that the applicant's consultant coordinate with City staff at an early stage in the planning process to ensure that the City's requirements are met.

Study Initiation

COMPLETING THE PROJECT INFORMATION FORM (PIF)

The applicant's consultant will prepare the PIF before coordinating with the City. This ensures that all the information necessary to determine study requirements is compiled and readily accessible. The PIF includes:

1. Project Information: Project location/context, site plan (including driveways and desired access control), project description, and trip generation and distribution.
2. Preliminary screening criteria review: This will determine the types of analysis that will be required (for example, whether a Local Mobility Analysis (LMA) and/or a transportation VMT CEQA analysis is required). If the project generates enough traffic to require a LMA/project access study (the project generates more than 500 daily unadjusted driveway trips and is inconsistent with the community plan or zoning or the project generates more than 1,000 daily unadjusted driveway trips and is consistent with the community plan and zoning); preliminary trip distribution/assignment should be provided on the project information form to help determine the geographic extent of the study.

Appendix A contains a blank PIF for use.

Once the PIF is completed, it is submitted along with a scoping letter to the City. City staff will review and provide any revisions. If necessary, City staff will initiate a meeting to discuss any additional information or unusual circumstances. The applicant/consultant may also contact Transportation Development Section staff to request a meeting to review the City's response to the scoping letter/PIF. In situations where Caltrans or another agency will also review the study, staff from these agencies should be notified of the project to foster coordination/collaboration and reduce the potential for study revisions. City staff can provide contact information for other agencies.

ELEMENTS OF THE PIF

The following items are required to complete the PIF:

Project Location/Context

- Project location map
- The project's Community Planning Area
- Indication of whether any portion of the project is located within ½ mile path of travel to a *Major Transit Stop*[1]
- The zoning and community plan land use designation of the project site and demonstration of consistency

Project Description

- Land uses and intensities
- Number of parking spaces: vehicle (including accessible spaces), motorcycle, bicycle (racks and secure storage)
- Any project features related to travel demand management. In addition, identify any transportation amenities or travel demand management measures that are required based on the San Diego Municipal Code Section 142.0528 (Parking Standards Transit Priority Area Regulations) or the Climate Action Plan Consistency Checklist. For example: transit pass subsidies, unbundled parking, shuttle services, car share, bicycle supportive features (bike repair station, bike lockers, etc.).
- For retail and recreation land uses, a market area study depicting the project's market capture area in miles and population to determine if the use is locally serving

Site Plan

- Clearly identified land use types and quantities, and number of parking spaces provided (vehicle and bicycle)
- Identified driveway locations and type (full access, partial access, right in/out only)

[1] CEQA Section 21064.3: Major transit stop means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

- Clearly identified pedestrian access, bicycle access, and on-site pedestrian circulation
- Locations of and distances to the closest existing transit stops and proposed transit stops identified in the Regional Transportation Improvement Program (RTIP): measured as walking distance to project entrance or middle of parcel

Trip Generation/Distribution/Assignment

The applicant's consultant shall identify the number of new daily and peak hour driveway vehicle-trips added by the project as described below:

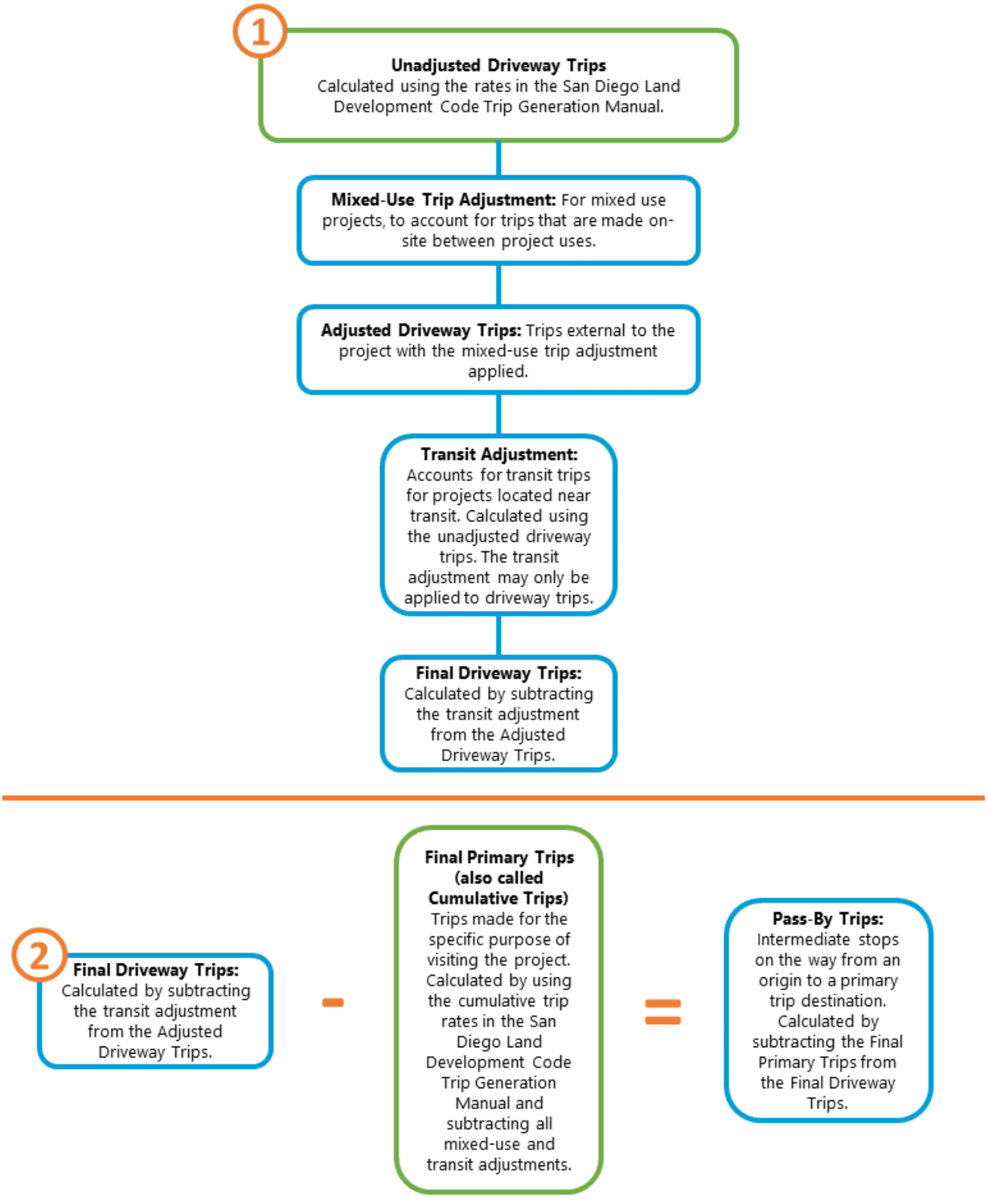
Trip Generation Procedure

Trip generation rates are commonly expressed in trips per unit of development - for example, trips per housing unit or trips per thousand square feet - and are derived by averaging trip generation data collected from existing land uses.

The following procedure shall be followed to determine the appropriate trip generation rates/equations to use:

1. Use the City of San Diego's Trip Generation Manual for trip generation rates of similar land use types.
2. If the City Trip Generation Manual does not provide rates for the project, utilize SANDAG's "Traffic Generators" publication or the current edition of the *Institute of Transportation Engineers (ITE) Trip Generation Manual,* with approval from the Transportation Development Section.
3. If the land use is unique and not included in either the City's Trip Generation Manual, SANDAG data, or the *ITE Trip Generation Manual*, then the applicant/consultant shall collect trip generation data at a minimum of four existing developments that are similar to the project. The existing developments selected as comparative projects shall be approved by City staff before any data is collected.

Once the trip generation rates/equations are established, the applicant's consultant may produce the vehicle trip generation for the project. The following chart describes the various elements that are part of the trip generation analysis.



* For redevelopment projects see "Identifying Existing Conditions" in the *Local Mobility Analysis (LMA) Requirements* Chapter for guidance on accounting for trips generated by an existing use.

Adjustments for Transit, Bicycling, Walking, and Transportation Network Companies (TNCs)

Most trip generation data (including data contained in the City of San Diego Trip Generation Manual) is based on suburban locations with little access to public transit. Additionally, given the suburban setting, bicycling and walking is also not a typical primary mode of transportation and is not generally captured in the trip generation data. For projects that are in close proximity to transit stops, transit use, bicycling, and walking must be specifically acknowledged to reduce the unadjusted driveway trip generation.

Table 1 displays driveway trip rate reductions that are allowable for development within a ½ mile path of travel to a *Major Transit Stop*. The applicant's consultant may also propose a method for determining reductions associated with transit, bicycling, and walking, with approval from the Transportation Development Section.

TABLE 1: DRIVEWAY TRIP REDUCTIONS TO ACCOUNT FOR TRANSIT, BICYCLE, AND PEDSTRIAN USE WITHIN ½ MILE PATH OF TRAVEL TO A MAJOR TRANSIT STOP

LAND USE TYPE*	DAILY	AM PEAK	PM PEAK
Residential	10%	14%	14%
Employment	4%**	15%	15%
Retail	N/A	N/A	N/A

Source: ITE Trip Generation Handbook, 3rd Edition

*See Appendix B: Land Use Definitions for each land use type

**Based on % of daily trips that occur during peak hour per the San Diego Trip Generation Manual for Commercial Office: 13% in AM and 14% in PM)

In addition, if a land use (such as a hotel, recreation, etc.) is expected to have a large amount of TNC pick-ups/drop-offs then the trip generation analysis should include an estimate.

Determining Internal Trips for Mixed-Use Projects

Most trip generation data (including data contained in the City of San Diego Trip Generation Manual) is based on isolated, single land use, suburban developments. When a mix of land uses are provided on a single site and are interconnected through internal roads and walkways, some of the raw vehicle trips are internalized; they never leave the project site. The effect that mixed-use development has on trip generation has been widely researched, including studies conducted by the Environmental Protection Agency (EPA)[2] and the Transportation Research Board[3].

To calculate the driveway trip generation rate reductions that are allowable for a mixed-use project, the applicant's consultant should use the *NCHRP 8-51 Internal Trip Capture Estimation Tool* created by the National Cooperative Highway Research Program. This spreadsheet requires the user to input the estimated entering and exiting trips associated with each project use, the expected vehicle occupancy, and the percentage of trips that are expected to be transit, bicycling, or walking trips. The percentages provided in **Table 1** can be used for the percentage of trips that are expected to be transit, bicycling, or walking trips if a project is located within ½ mile path of travel to a *Major Transit Stop*. If the project is not located within ½ mile path of travel to a *Major Transit Stop*, then these values should be entered as 0%.

The spreadsheet is available for download here: http://www.trb.org/Publications/Blurbs/165014.aspx.

The applicant's consultant may also propose a method for determining adjustments to trip generation for mixed-use projects, with approval from the Development Services Department's Transportation Development Section.

Determining Pass-By Trips

Pass-by trips are trips to the project that are intermediate stops on the way to another land use. For example, if you stop on your way home from work at the gas station (located on the street that you are already on as part of your commute), the trip to the gas station is a pass-by trip. Pass-by trips only apply to commercial/retail land-uses. The applicant's consultant should determine the number of pass-by trips by:

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[2] *Traffic Generated by Mixed-Use Developments – A Six-Region Study Using Consistent Built Environment Measures* (Ewing et al, ASCE UP0146, September 2011).

[3] National Cooperative Highway Research Program (NCHRP) Report 684, *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*, 2011. This research served as the basis for the recommended mixed-use trip generation method in the 3rd Edition of the ITE *Trip Generation Handbook*.

- Determining the appropriate percentage of pass-by trips using the City of San Diego Land Development Code Trip Generation Manual.
- Assigning pass-by trips to driveways to/from adjacent streets considering driveway locations and allowed turning movements. The pass-by reduction should not exceed 10% of the adjacent street volume.

Trip Distribution/Assignment Procedure

The following describes the procedure for assigning the primary/diverted link project trips to the roadway network. The trip distribution can be estimated using two methods:

- Method 1: Manual estimation using existing traffic volumes, location of complementary land uses, and engineering judgement. The trip distribution shall be clearly communicated on a map that shows the percent of project traffic on each roadway in the vicinity of the project site.
- Method 2: Use the current version of the SANDAG Regional Travel Demand Model to perform a select zone analysis. If a project generates more than 2,400 daily unadjusted driveway vehicle trips, the SANDAG Regional Travel Demand Model shall be used to estimate trip distribution.

The roadway network for trip distribution/assignment should include the existing and fully funded/programmed roadway network. In addition, projects that would contribute significant traffic to a planned and unfunded roadway segment may be required to analyze both with and without the roadway.

It is critical to consider project driveway location and allowed turning movements at driveways and intersections when estimating local trip distribution/assignment. The applicant's consultant may need to assign multiple routes between the project and the origin/destination, to account for one-way streets, turn prohibitions, etc.

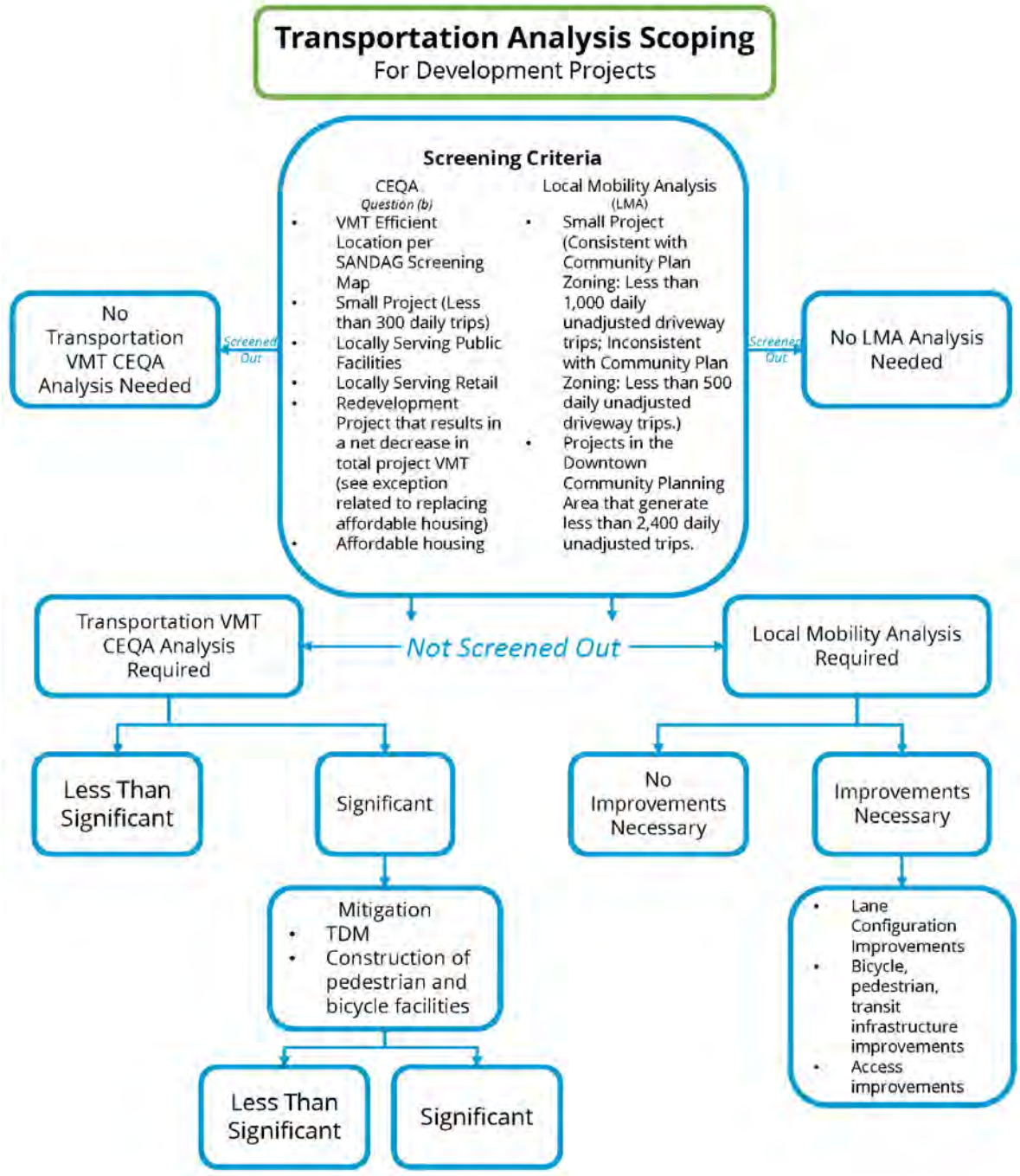
As noted above, a separate trip distribution/assignment estimate is required for the pass-by trips. Pass-by trips shall be assigned to driveways to/from adjacent streets and should consider driveway location and allowed turning movements. The pass-by reduction shall not exceed 10% of the adjacent street volume.

DETERMINING STUDY REQUIREMENTS

See the *Transportation VMT CEQA Requirements* chapter and *Local Mobility Analysis (LMA) Requirements* chapter for screening criteria and study requirements.

- Transportation VMT CEQA Study Requirements: Page 13
- LMA Requirements: Page 33

The following flowchart on page 12 provides an overview of how to determine study requirements.



* City staff may request analysis or additional study requirements due to location, project complexity, local transportation system complexity, or other local context despite meeting the screening criteria listed in the flow chart.

CEQA Transportation VMT Requirements

SB 743 BACKGROUND & CONSISTENCY WITH CITY GOALS

On September 27, 2013, Governor Jerry Brown signed SB 743 into law and started a process intended to fundamentally change transportation impact analysis as part of CEQA compliance. The Office of Planning and Research (OPR) published its latest Technical Advisory on Evaluating Transportation Impacts in CEQA to the California Natural Resources Agency in December 2018. This Technical Advisory provides recommendations on how to evaluate transportation impacts under SB 743. These changes include elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant CEQA transportation impacts. The OPR guidance covers specific changes to the CEQA Guidelines and recommends elimination of auto delay for CEQA purposes and the use of Vehicle Miles Travelled, or VMT, as the preferred CEQA transportation metric. This new legislation requires the selection of a VMT analysis methodology, establishment of VMT thresholds for CEQA transportation impacts, and identification of feasible mitigation strategies. SB 743 includes the following two legislative intent statements:

1. Ensure that the environmental impacts of traffic, such as noise, air pollution, and safety concerns, continue to be properly addressed and mitigated through the California Environmental Quality Act.
2. More appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas (GHG) emissions.

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

LOS refers to "Level of Service," a metric that assigns a letter grade to network performance. The typical application of LOS in cities is to measure the average amount of delay experienced by vehicle drivers at an intersection during the most congested time of day and to assign a report card range from LOS A (fewer than 10 seconds of delay for signalized intersections) to LOS F (more than 80 seconds of delay for signalized intersections).

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

VMT does not directly measure traffic operations but instead is a measure of network use or efficiency, especially if expressed as a function of population or employment (i.e., VMT per capita). VMT tends to increase as land use density decreases and travel becomes more reliant on the use of automobiles

due to the long distances between origins and destinations. VMT can also serve as a proxy for impacts related to energy use, air pollution emissions, greenhouse gas (GHG) emissions, safety, and roadway maintenance. The relationship between VMT and energy or emissions is based on fuel consumption. The traditional use of VMT in environmental impact analysis is to estimate mobile air pollution emissions, GHGs, and energy consumption.

Consistency with City of San Diego Goals/Policies

The legislative intent of SB 743 has many consistencies with City of San Diego goals and policies contained in the General Plan, Climate Action Plan, and individual Community Plans.

The General Plan is the foundation upon which all land use decisions in the City are based. It expresses a citywide vision and provides a comprehensive policy framework for how the City should grow and develop, provide public services, and maintain the qualities that define the City of San Diego. Land use decisions influence transportation and greatly affect how much a person travels, the travel mode, and travel distance, which are all components of VMT. The community plans are a part of the Land Use Element of the General Plan. Community plans provide more detailed land use designations and site-specific policy recommendations than is practical at the citywide level. Community plans typically address community issues such as: the local street, bicycle, pedestrian, and transit networks; distinctive environmental characteristics; community landmarks; location, prioritization, and provision of public facilities; community urban design guidelines; and identification of gateways. Together, the General Plan and the Community Plans seek to guide future growth and development to achieve citywide and community-level goals.

The City's Climate Action Plan, adopted in 2015, addresses greenhouse gas emissions reduction targets through various strategies, including 100% renewable energy; implementing a zero-waste plan; and increasing non-auto commuter travel mode share. The Climate Action Plan helps achieve the greenhouse gas reduction targets set forth by the State of California.

The General Plan, Community Plans, and Climate Action Plan include policies that support the legislative intent of SB 743. These guidelines for SB 743 implementation in the City of San Diego consider OPR's Technical Advisory and consistency with the City's adopted policies. The following summarizes the aspects of the General Plan, Community Plans, and Climate Action Plan that inform SB 743 implementation.

City of San Diego General Plan (2008) and Community Plans

The General Plan goals and policies that support the intent of SB 743 are included in **Table 2**.

TABLE 2: CITY OF SAN DIEGO GENERAL PLAN GOALS AND POLICIES THAT SUPPORT SB 743

Land Use and Community Planning Element	
City of Villages Strategy	
GOAL	**Establish mixed-use villages located throughout the City and connected by high-quality transit.**
LU-A.1	B. Encourage further intensification of employment uses throughout Sub Regional Employment Districts. Where appropriate, consider collocating medium- to high-density residential uses with employment uses (see also Economic Prosperity Element).
	D. Revitalize transit corridors through the application of plan designations and zoning that permits a higher intensity of mixed-use development. Include some combination of: residential above commercial development, employment uses, commercial uses, and higher density-residential development.
LU-A.2	Identify sites suitable for mixed-use village development that will complement the existing community fabric or help achieve desired community character, with input from recognized community planning groups and the general public.
LU-A.4	Locate village sites where they can be served by existing or planned public facilities and services, including transit services.
LU-A.8	Determine at the community plan level where commercial uses should be intensified within villages and other areas served by transit, and where commercial uses should be limited or converted to other uses.
LU-A.10	Design infill projects along transit corridors to enhance or maintain a "Main Street" character through attention to site and building design, land use mix, housing opportunities, and streetscape improvements.
Balanced Communities and Equitable Development	
LU-H.6	Provide linkages among employment sites, housing, and villages via an integrated transit system and a well-defined pedestrian and bicycle network.
Environmental Justice	
GOAL	**Improve mobility options and accessibility in every community.**
LU-I.9	Design transportation projects so that the resulting benefits and potential burdens are equitable. Some of the benefits of transportation programs include improved accessibility, faster trips, more mobility choices, and reduced congestion. Common negative consequences include health impacts of air pollution, noise, crash-related injuries and fatalities, dislocation of residents, and division of communities.
LU-I.10	Improve mobility options and accessibility for the non-driving elderly, disabled, low-income, and other members of the population (see also Mobility Element, Section B).

	B. Increase the supply of housing units that are in close physical proximity to transit and to everyday goods and services, such as grocery stores, medical offices, post offices, and drug stores.
Mobility Element	
Walkable Communities	
ME-A.8	Encourage a mix of uses in villages, commercial centers, transit corridors, employment centers and other areas as identified in community plans so that it is possible for a greater number of short trips to be made by walking.
Transit First	
ME-B.9	Make transit planning an integral component of long-range planning documents and the development review process.
	A. Plan for transit-supportive villages, transit corridors, and other higher intensity uses in areas that are served by existing or planned higher-quality transit services, in accordance with Land Use and Community Planning Element, Sections A and C.
	D. Locate new public facilities that generate large numbers of person trips, such as libraries, community service centers, and some recreational facilities in areas with existing or planned transit access.
Street and Freeway System	
ME-C.8	Implement Traffic Impact Study Guidelines that address site and community specific issues.
	A. Give consideration to the role of alternative modes of transportation and transportation demand management (TDM) plans in addressing development project traffic impacts.
	B. Consider the results of site-specific studies or reports that justify vehicle trip reductions (see also ME-E.7).
	Implement best practices for multi-modal quality/level of service analysis guidelines to evaluate potential transportation impacts and determine appropriate mitigation measures from a multi-modal perspective.
Transportation Demand Management	
ME-E.7	Consider TDM programs with achievable trip reduction goals as partial mitigation for development project traffic and air quality impacts.
Housing Element	
Objective A	Identify and Make Available for Development Adequate Sites to Meet the City's Diverse Housing Needs
HE-A.7	Work to develop a comprehensive strategy for addressing the critical need for more workforce housing serving moderate to middle income workers in San Diego. In keeping with the goals of SB 375 and the Sustainable Communities Strategy, the City should strive to promote the location of workforce housing proximate to employment and/or multimodal transportation facilities.
Objective F	Reduction of Governmental Constraints

HE-F.2	Continue to develop and maintain policies and programs that identify obstacles to affordable housing, infill, and smart growth development and provide regulatory relief strategies and tools that will streamline the implementation process.
HE-F.7	Continue to implement provisions of state law which exempt certain affordable housing projects from CEQA if specified criteria are met, and adopt new CEQA exemptions for infill projects that meet or exceed minimum green building standards and are transit-oriented, and/or affordable housing projects in accordance with SB 375.
Objective G	Infrastructure Strategy
HE-G.6	Advocate for state legislation authorizing tax-increment financing for Smart Growth Districts which have "transit priority" opportunities as defined by SB 375. Use tax increment revenue for infrastructure needed to support infill development.
Objective J	Promote the Reduction of Greenhouse Gas (GHG) Emissions in Accordance with SB 375 and the California Long-Term Energy Efficiency Strategic Plan; and Promote Consistency with the General Plan's City of Villages Strategy and Other Citywide Planning Efforts
HE-J.1	Utilize the planning and review processes to promote economically viable, environmentally sound, and socially equitable land use designations and development patterns which conserve non-renewable energy sources such as fossil fuels, water, and natural gas.
HE-J.2	Provide incentives for mixed-use development which include housing, retail, and office uses at transit nodes and other high-intensity locations as appropriate.
HE-J.3	Seek to locate higher-density housing principally along transit corridors, near employment opportunities, and in proximity to village areas identified elsewhere in community plans.
HE-J.4	Improve infrastructure systems throughout the City's communities as to support infill development and promote new affordable housing. A comprehensive funding strategy should be developed in order to address existing deficiencies and future needs.

Climate Action Plan (CAP) (2015)

The Climate Action Plan includes five strategies for reducing greenhouse gas emissions:

1. Water & Energy Efficient Buildings
2. Clean & Renewable Energy
3. Bicycling, Walking, Transit, & Land Use
4. Zero Waste (Gas & Waste Management)
5. Climate Resiliency

Strategy 3 (Bicycling, Walking, Transit, & Land Use) aligns closely with the legislative intent of SB 743. Strategy 3 includes commute mode share goals for bicycling, walking, and transit use for workers who live in Transit Priority Areas (TPAs), leading to commute VMT reductions. Additionally, Strategy 3

promotes effective land use to reduce VMT (specifically implementing transit-oriented development within TPAs).

The Climate Action Plan also includes the CAP Consistency Checklist. The Consistency Checklist contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. The CAP Consistency Checklist includes Transportation Demand Management Program requirements for employment-based projects with over 50 employees. The CAP Consistency Checklist allows the project applicant to choose from a menu of TDM strategies.

TRANSPORTATION SIGNIFICANCE DETERMINATION: QUESTION B

Question B from the Transportation Section of the ***City of San Diego's Significance Determination Thresholds*** is discussed in the remaining sections of this chapter. Refer to the ***City of San Diego's Significance Determination Thresholds*** document for a complete discussion of *all* transportation questions to be considered for CEQA analysis.

Transportation Question B establishes VMT as the metric to measure transportation environmental impacts in conformance with SB 743/CEQA.

The guidelines presented herein address the CEQA Analysis for Transportation Question B in the City of San Diego and are organized in this document as follows:

- **Screening Criteria:** Screening criteria for land use and transportation projects is provided to determine whether VMT analysis is required.
- **Significance Thresholds:** Significance thresholds define what constitutes an acceptable level of VMT and what requires mitigation measures. This process is governed by CEQA Guidelines Section 15064.7.
- **Analysis Methodology:** Analysis methodology provides procedures for evaluating VMT for land use and transportation projects.
- **Mitigation:** Projects that are found to have a significant impact based on the City's significance thresholds are required to implement mitigation measures to reduce impacts to a less than significant level (or to the extent feasible). The guidelines establish appropriate mitigation and the methodology for evaluating mitigation effectiveness.

In addition to the transportation analysis required under CEQA, the City also requires a Local Mobility Analysis (LMA) to identify any off-site infrastructure improvements in the project vicinity that may be triggered with the development of the proposed project. The LMA also evaluates site access and circulation and the local multi-modal network available to serve the project. LMA requirements begin on page 33.

Screening Criteria

The requirements to prepare a detailed transportation VMT analysis apply to all land development projects, except for those that meet at least one of the following criteria in the numbered list below. A project that meets at least one of the screening criteria below would be presumed to have a less than significant VMT impact due to project characteristics and/or location.

1. **Residential or Commercial Project Located in a VMT Efficient Area:** The project is a residential or commercial employment project located in a VMT efficient area (15% or more below the base year average VMT per Capita or VMT per Employee) based on the applicable location-based screening map produced by SANDAG.

2. **Industrial or Agricultural Project Located in a VMT Efficient Area:** The project is an industrial employment or agricultural employment project located in VMT efficient area (in an area with average or below average base year VMT per Employee) based on the applicable location-based screening map produced by SANDAG.

3. **Small Project:** The project is a small project defined as generating less than 300 daily unadjusted driveway trips using the City of San Diego trip generation rates/procedures.

4. **Locally Serving Retail/Recreational Project:** The project is a locally serving retail/recreational project defined as having 100,000 square feet gross floor area or less **and** demonstrates through a market area study that the market capture area for the project is approximately three miles (or less) and serves a population of roughly 25,000 people or less. Locally serving retail is consistent with the definitions of Neighborhood Shopping Center in the San Diego Municipal Code Land Development Code Trip Generation Manual. Locally serving recreation land uses are listed in **Appendix B**, if they meet the square footage and market capture area above. Adding retail/recreation square footage (even if it is 100,000 square feet gross floor area or less) to an existing regional retail shopping area is **not** screened out.

5. **Locally Serving Public Facility:** The project is a locally serving public facility defined as a public facility that serves the surrounding community or a public facility that is a passive use. The following are considered locally serving public facilities: transit centers, public schools, libraries, post offices, park-and-ride lots, police and fire facilities, and government offices. Passive public uses include communication and utility buildings, water sanitation, and waste management.

6. **Affordable Housing:** The project has access to transit[4] and is wholly or has a portion that meets one of the following criteria: is affordable to persons with a household income equal to or less than 50% of the area median income (as defined by California Health and Safety Code Section 50093), housing for senior citizens [as defined in Section 143.0720(e)], housing for transitional foster youth, disabled veterans, or homeless persons [as defined in 143.0720(f)]. The units shall remain deed restricted for a period of at least 55 years. The project shall provide no more than the minimum amount of parking per unit, per San Diego Municipal Code Section 143.0744. Only the portion of the project that meets the above criteria is screened out. For example, if the project is 100 units with 10 deed-restricted affordable housing units, transportation VMT analysis would not be necessary for the 10 affordable units but would be

[4] Access to transit is defined as transit being located within a reasonable walking distance (1/2 mile) from the project driveway.

necessary for the remaining 90 units (unless they meet one of the other screening criteria). For purposes of applying the small project screening criteria, the applicant would only include the trip generation for the non-affordable housing portion of the project (since the affordable housing portion is screened out).

7. **Mixed Use Project Screening Considerations:** The project's individual land uses should be compared to the screening criteria above. It is possible for some of the mixed-use project's land uses to be screened out and some to require further analysis. For purposes of applying the small project screening criteria, the applicant would only include the trip generation for portions of the project that are **not** screened out based on other screening criteria. For example, if a project includes residential and retail, and the retail component was screened out because it is locally serving; only the trip generation of the residential portion would be used to determine if the project meets the definition of a small project.

8. **Redevelopment Project Screening Considerations:** The project is a redevelopment project that demonstrates that the proposed project's total project VMT is less than the existing land use's total VMT. Exception: If a project replaces affordable housing (either deed restricted or other types of affordable housing) with a smaller number of moderate-income or high-income residential units, the project is not screened out and must analyze VMT impacts per **Table 3**.

Specific land use designations that fit within residential, commercial employment, industrial employment, agricultural employment, public facilities, and retail categories are provided in **Appendix B**. Evidence to support the screening criteria is provided in **Appendix C.**

For transportation projects, any project that results in an increase in additional motor vehicle capacity (such as constructing a new roadway or adding additional vehicle travel lanes on an existing roadway) has the potential to increase vehicle travel, referred to as "induced vehicle travel." Project types that would not result in increased vehicle travel have a less than significant impact and can be screened out from performing VMT analysis. These types of projects include:

- Rehabilitation/maintenance projects that do not add motor vehicle capacity
- Addition of bicycle facilities
- Intersection traffic signal improvements/turn-lane configuration changes
- Installation of roundabouts and traffic calming devices
- Implementation of roadways that are included in community plans approved after the comprehensive General Plan Update in 2008 if conditions are substantially improved for active transportation modes
- Additional capacity on local/collector streets if conditions are substantially improved for active transportation modes

If a roadway project classified as a major or primary arterial is included in a Community Plan that has been updated after the 2008 City of San Diego's comprehensive General Plan Update, it may be presumed to have a less than significant transportation impact with no additional transportation analysis of induced VMT necessary because these roadway projects are required to support citywide planned growth and implementation of the General Plan Goals identified in Table 2, which are consistent with the intent of SB 743. See **Appendix D**: Transportation Project Screening Criteria for additional information and evidence that supports this presumption.

A complete list of transportation projects that are screened-out from performing VMT analysis is included in **Appendix D**.

Significance Thresholds

Projects that do not meet the above screening criteria must include a detailed evaluation of the VMT produced by the project. The significance thresholds and specific VMT metric used to measure VMT are described by land use type in **Table 3**.

TABLE 3: TRANSPORTATION VMT THRESHOLDS OF SIGNIFICANCE BY LAND USE TYPE

LAND USE TYPE (See Appendix B for Specific Land Use Designations)	THRESHOLD FOR DETERMINATION OF A SIGNIFICANT TRANSPORTATION VMT IMPACT**
Residential	15% below regional mean* VMT per Capita
Commercial Employment	15% below regional mean* VMT per Employee
Industrial and Agricultural Employment	Regional mean* VMT per Employee
Regional Retail	Zero net increase in total regional VMT*
Hotel	See Commercial Employment
Regional Recreational	See Regional Retail
Regional Public Facilities	See Regional Retail
Mixed-Use	Analyze each land use individually per above categories
Redevelopment	Apply the relevant threshold based on proposed land use (ignore the existing land use)
Transportation Projects	Zero net increase in total regional VMT*

* The regional mean and total regional VMT are determined using the SANDAG Regional Travel Demand Model. The specific model version and model year will be identified by the Development Services Department's Transportation Development Section.

** Projects that exceed these thresholds would have a significant impact.

Significance Thresholds for Large Land Use Plans

For large land use plans, such as Specific Plans, Master Plans, etc., the significance thresholds presented in Table 3 apply as follows:

- Residential – Aggregate all residential land uses and compare the resulting VMT per Capita to the regional mean. The threshold is 15% below the regional mean VMT per Capita per Table 3.
- Commercial Employment – Aggregate all commercial employment land uses and compare the resulting VMT per Employee to the regional mean. The threshold is 15% below the regional mean VMT per Employee per Table 3.
- Industrial and Agricultural Employment - Aggregate all industrial employment or agricultural employment land uses and compare the resulting VMT per Employee to the regional mean. The threshold is the regional mean VMT per Employee per Table 3.
- Retail, Public Facilities, and Recreational Facilities – Evaluate the effect that adding these land uses has on regional VMT.
- Transportation Projects – Evaluate the effect that adding new vehicular roadway capacity has on regional VMT.

SANDAG SB 743 VMT Data Definitions

VMT per Capita represents the average amount of personal, non-commercial, vehicle travel made on an average weekday by each resident. The VMT for each resident is summed up for all trip purposes or reasons throughout the day. This metric only includes travel made by residents within the San Diego Region.

VMT per Employee represents the average amount of personal, non-commercial, vehicle travel made on an average weekday by each resident employee whose employment/work location is within that geographic boundary and it includes all travel made by the employee, not just commuting to work, and includes those individuals who telecommute to their work location. This metric only includes travel made by employed residents within the San Diego Region (i.e. residents from other counties or Mexico that work in San Diego are not included). Additionally, VMT is only included from personal vehicles and does not include commercial travel on the employer's clock (e.g. deliveries, business travel, etc.) or heavy duty truck travel.

Analysis Methodology

Transportation VMT analysis for CEQA shall be conducted using the SANDAG Regional Travel Demand Model. SANDAG produces base year VMT per Capita and VMT per Employee maps that display the regional mean as well as VMT metrics at the census tract level. The call-out to the right defines VMT per Capita and VMT per Employee.

Table 4 provides guidance on conducting transportation VMT analysis for CEQA based on the land use.

TABLE 4: TRANSPORTATION VMT ANALYSIS METHODOLOGY BY LAND USE

LAND USE TYPE	ANALYSIS METHODOLOGY
Residential	**For projects that generate less than 2,400 daily unadjusted driveway trips:** Identify the location of the project on the SANDAG VMT per Capita map. The project's VMT per Capita will be considered the same as the VMT per Capita of the census tract in which it is located. Compare the project's VMT per Capita to the threshold to determine if the impact is significant OR input the project into the SANDAG Regional Travel Demand Model to determine the project's VMT per Capita. **For projects that generate greater than 2,400 daily unadjusted driveway trips:** Input the project into the SANDAG Regional Travel Demand Model for SANDAG to provide the project's VMT per Capita. To perform the analysis, all project land uses should be inputted, and the VMT/Capita should be determined using the same method/scripts that SANDAG utilizes to develop the SANDAG VMT per Capita maps.

LAND USE TYPE	ANALYSIS METHODOLOGY
Commercial Employment	**For projects that generate less than 2,400 daily unadjusted driveway trips:** Identify the location of the project on the SANDAG VMT per Employee map. The project's VMT per Employee will be considered the same as the VMT per Employee of the census tract in which it is located. Compare the project's VMT per Employee to the threshold to determine if the impact is significant OR input the project into the SANDAG Regional Travel Demand Model to determine the project's VMT per Employee. **For projects that generate greater than 2,400 daily unadjusted driveway trips:** Input the project into the SANDAG Regional Travel Demand Model for SANDAG to provide the project's VMT per Employee. To perform the analysis, all project land uses should be inputted, and the VMT per Employee should be determined using the same method/scripts that SANDAG utilizes to develop the SANDAG VMT per Employee maps.

LAND USE TYPE	ANALYSIS METHODOLOGY
Industrial or Agricultural Employment	**For projects that generate less than 2,400 daily unadjusted driveway trips:** Identify the location of the project on the SANDAG VMT per Employee map. The project's VMT per Employee will be considered the same as the VMT per Employee of the census tract in which it is located. Compare the project's VMT per Employee to the threshold to determine if the impact is significant OR input the project into the SANDAG Regional Travel Demand Model to determine the project's VMT per Employee. **For projects that generate greater than 2,400 daily unadjusted driveway trips:** Input the project into the SANDAG Regional Travel Demand Model to determine the project's VMT per Employee. To perform the analysis, all project land uses should be inputted, and the VMT per Employee should be determined using the same method/scripts that SANDAG utilizes to develop the SANDAG VMT per Employee maps.
Regional Retail	Calculate the change to regional VMT using the SANDAG Travel Demand Model. To calculate the change in regional VMT, the regional retail component of the project should be inputted into the travel demand model (year that is used to determine the VMT thresholds). The "with project regional retail" regional VMT produced by the model run is compared to the "no project" regional VMT.
Hotel	See Commercial Employment
Regional Recreational	See Regional Retail
Regional Public Facilities	See Regional Retail
Mixed-Use	Analyze based on appropriate land use above

LAND USE TYPE	ANALYSIS METHODOLOGY
Redevelopment	Analyze based on appropriate land use above Exception: If a project replaces affordable housing (either deed restricted or other affordable housing) with a smaller number of moderate-income or high-income residential units, the VMT assessment should incorporate an estimate of the aggregate VMT increase experienced by the displaced residents. The additional VMT due to displaced residents should be incorporated into the VMT per Capita for the project.
Transportation Projects	Calculate the change to regional VMT using the SANDAG Travel Demand Model. To calculate the change in regional VMT, the roadway network in the model should be adjusted to include the proposed transportation project. The "with transportation project" regional VMT produced by the model run is compared to the "no transportation project" regional VMT do determine if there is an increase in regional VMT.

If the project includes transportation demand management (TDM) measures, required transportation amenities (related to the TPA Parking Standards or Complete Communities: Mobility Choices Ordinance), or measures required by the CAP Consistency Checklist, the reduction in VMT due to each measure shall be calculated and can be applied to the project analysis. There are several resources for determining the reduction in VMT due to TDM measures, such as the California Air Pollution Control Officers Association (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures* (2010) (Quantification Report) and the SANDAG Mobility Management Guidebook/VMT Reduction Calculator Tool (see Mitigation Section below). The applicant should coordinate with the Development Services Department's Transportation Development Section staff to determine the appropriate method for calculating TDM measure effectiveness.

The VMT reductions associated with project TDM should be applied to the appropriate metric(s) based on the project land uses. If the project does not include any TDM, then no reduction would be taken.

The resulting VMT values shall be compared to the appropriate threshold in **Table 4** to determine whether the project results in a significant CEQA transportation impact due to VMT.

Mitigation (Transportation Demand Management)

If a project is found to have a significant transportation VMT impact, the impact must be mitigated by reducing the project's VMT per Capita or VMT per Employee. Typically, VMT is reduced by implementing strategies that achieve one of the following:

- Reducing the number of automobile trips generated by the project or by the residents or employees of the project.
- Reducing the distance that people drive.

Strategies that reduce single occupant automobile trips or reduce travel distances are called TDM strategies.

The City of San Diego requires TDM and transportation amenities for certain project types pursuant to the San Diego Municipal Code Section 142.0528, the CAP Consistency Checklist, and regulations related to Complete Communities: Mobility Choices. Applicants should refer to the San Diego Municipal Code Section 142.0528, the CAP Consistency Checklist, and regulations related to Complete Communities: Mobility Choices to determine if the project must comply with any requirements. These would be considered as project features and would not count towards mitigation.

There are several resources for determining the reduction in VMT due to TDM measures such as the CAPCOA Quantification Report and the SANDAG Mobility Management Guidebook/VMT Reduction Calculator Tool (see Mitigation Section below). The applicant should coordinate with the Development Services Department's Transportation Development Section staff to determine the appropriate method for calculating TDM measure effectiveness. **Appendix E** provides a methodology for calculating TDM effectiveness based on the CAPCOA Quantification Report.

Strategies are categorized as primary or supportive. A primary strategy has a VMT reduction effectiveness that can be directly calculated using the CAPCOA Quantification Report. Typically, the effectiveness calculation requires assumptions regarding participation or eligibility rates. While VMT reductions may not be applied for supportive strategies, they boost participation or eligibility rates and make the primary strategy more effective.

All assumptions regarding participation, eligibility, and other variables must be clearly documented for each applied TDM strategy. Also, as described in the CAPCOA Quantification Report, strategies are not directly additive, and when determining the overall VMT reduction, the VMT reduction separately

calculated for each of the individual strategies (within their overall TDM strategy category) shall be dampened, or diminished, according to a multiplicative formula to account for the fact that some of the strategies may be redundant or applicable to the same populations. The multiplicative equation to accomplish this adjustment is as follows:

Overall % VMT Reduction = 1-(1-A)*(1-B)*(1-C)*(1-D)*…

Where A, B, C, D … = individual mitigation strategy reduction percentages

For example, if two strategies were proposed with corresponding VMT reductions of 20% and 10%, the equation would be [1-(1-20%)*(1-10%)] or [1-(80%*90%)], which equates to a 28% reduction rather than the 30% reduction that would otherwise be seen with a direct sum.

The following TDM strategies are defined in **Appendix E**. They are categorized as either Primary (P) or Supportive (S) strategies. The applicant must demonstrate to the satisfaction of the Development Services Department Transportation Development Section that the measures are enforceable and effective.

Neighborhood / Site Enhancement

- Bicycle Infrastructure Improvements (P)
- Bike Share/Micromobility Fleet (P)
- Pedestrian Network Improvements (P)
- Traffic Calming (P)
- Neighborhood Electric Vehicle Dedicated Network (P)
- Car Share (P)
- Bicycle Riders Guide (S)
- Electric Bicycle/Micromobility Charging Station (S)
- Subsidized Bicycle Expenses (S)
- Bicycle Parking (S)
- Bicycle Supportive Programs (S)
- DIY Bicycle Repair Stand (S)
- On-Site Showers and Lockers (S)
- Walking Supportive Programs (S)
- Subsidized Walking Expenses (S)
- Passenger Loading Zones (S)
- Mobility Hub (S)

Parking Policy / Pricing

- Limited Parking Supply (P)
- Unbundled Parking (P)
- Priced Public Parking (P)
- Parking Cash Out Program (P)
- Residential Area Parking Permits (S)
- Time-Limited Street Parking (S)
- Real-Time Parking Information (S)

Transit System Improvements

- Transit Network Expansion (P)
- Increased Transit Service Frequency/ Speed (P)
- Transit Pass Subsidy/Partial Subsidy (P)
- Enhanced Transit Amenities (i.e. – bike parking, shelters, benches, trash receptacles) (S)
- Transit Encouragement Programs (S)
- Transit App (S)
- Onsite Transit Pass Outlet (S)

Commute Trip Reduction

- Voluntary Commute Trip Reduction Program
    - Carpooling Program and Encouragement (P)
    - Alternative Work Schedules (P)
    - Vanpool Programs (P)
    - Transportation Coordinator (S)
    - Preferential Carpool Parking (S)
    - Bicycle End Trip Facilities (S)
- Transit Pass Subsidy/Partial Subsidy (P)
- Price Workplace Parking (P)
- Telecommuting (P)
- Commute Trip Reduction Marketing (P)
- Guaranteed Ride Home Program (S)
- Last Mile Connections (S)

Applicants shall refer to **Appendix E** and the CAPCOA, *Quantifying Greenhouse Gas Mitigation Measures* (2010), Chart 6-2: Transportation Strategies Organization to quantify the effectiveness of the mitigation measures chosen. **Appendix E** and CAPCOA Quantification Report Chart 6-2 lists each mitigation measure and its maximum VMT reduction. It is critical that TDM effectiveness is calculated for the type of trip that it will influence. For example, a commute trip reduction program will only apply to commute related VMT. Other strategies or technologies that reduce VMT may be considered with documentation of effectiveness.

For transportation projects, potential mitigation could include managing travel (through pricing and/or vehicle occupancy requirements) and/or including/improving bicycle and pedestrian facilities on the roadway.

Significant and Unavoidable Impacts

Projects that have a significant impact that cannot be mitigated to a less than significant level must provide a detailed statement of overriding considerations and findings to support these considerations in accordance with CEQA Guidelines Section 15091 and 15093.

Local Mobility Analysis (LMA)

The Local Mobility Analysis (LMA) evaluates the effects of a development project on mobility, access, circulation, and related safety elements in the proximate area of the project. The LMA has the following objectives:

- Ensures that improvements identified in the Community Plan that support multi-modal circulation and access are constructed when needed.
- Identifies improvements needed to support and promote active transportation and transit modes.
- Ensures the project provides connections to the active transportation network and transit system.
- Addresses issues related to operations and safety for all transportation modes.

DETERMINING STUDY REQUIREMENTS

Screening Criteria

All projects must complete an LMA unless they meet the following screening criteria:

- Consistent with community plan and zoning designation and generates less than 1,000 daily unadjusted driveway vehicle trips
- Inconsistent with community plan or zoning designation and generates less than 500 daily unadjusted driveway vehicle trips
- Within the Downtown Community Planning Area and generates less than 2,400 daily unadjusted trips.[5]

The screening criteria provided serve as a guide to determine study requirements. City staff may determine additional study requirements apply due to location, project complexity, local transportation system complexity, or other local context. City staff will provide a written response to

[5] Projects that exceed this threshold shall comply with mitigation measure TRF-A.1.1-2 of the Downtown Community Plan & Downtown Mobility Plan FEIR/SEIR Mitigation Monitoring and Reporting Program.

the PIF and request a meeting with the applicant/consultant if the City has identified the need to perform an LMA despite meeting the screening criteria listed above.

Extents of Study

The extents of the LMA study will be determined for each mode as follows:

- Pedestrian: Documentation of pedestrian facilities and basic deficiencies (missing sidewalk, curb ramps, and major obstructions) within ½ mile walking distance measured from each pedestrian access point (for example, driveways, internal project sidewalk connections to the street, etc.).
- Bicycle: Documentation of bicycle facilities and basic deficiencies (bike lane gaps, obstructions) within ½ mile bicycling distance measured from the center of the intersection formed by each project driveway.
- Transit: Identification of the closest transit routes and stops to the project. If the transit stops are within ½ mile walking distance of each pedestrian access point, the condition of the stop amenities must be described/evaluated.
- Intersection Operations: Intersections are focal points within a mobility network where multiple modes interact and at times, conflict, in their movements. Understanding intersection operations is essential for understanding circulation and safety for all modes that traverse through the intersection.
    - For Projects that generate less than 2,400 daily final driveway[6] trips the typical study intersections are as follows:
        - All signalized intersections and signalized project driveways located within ½ mile path of travel distance measured from the center of the intersection formed by each project driveway AND the project will add 50 or more peak hour final primary (cumulative) trips[6] to any turning movement at the intersection.
        - All unsignalized intersections (side street stop controlled, all-way stop-controlled, and roundabouts) and unsignalized project driveways located within ½ mile path of travel distance measured from the center of the

[6] Refer to the trip generation chart in the Study Initiation chapter for trip generation definitions.

intersection formed by each project driveway AND the project will add 50 or more peak hour final primary (cumulative) trips[6] in either direction.

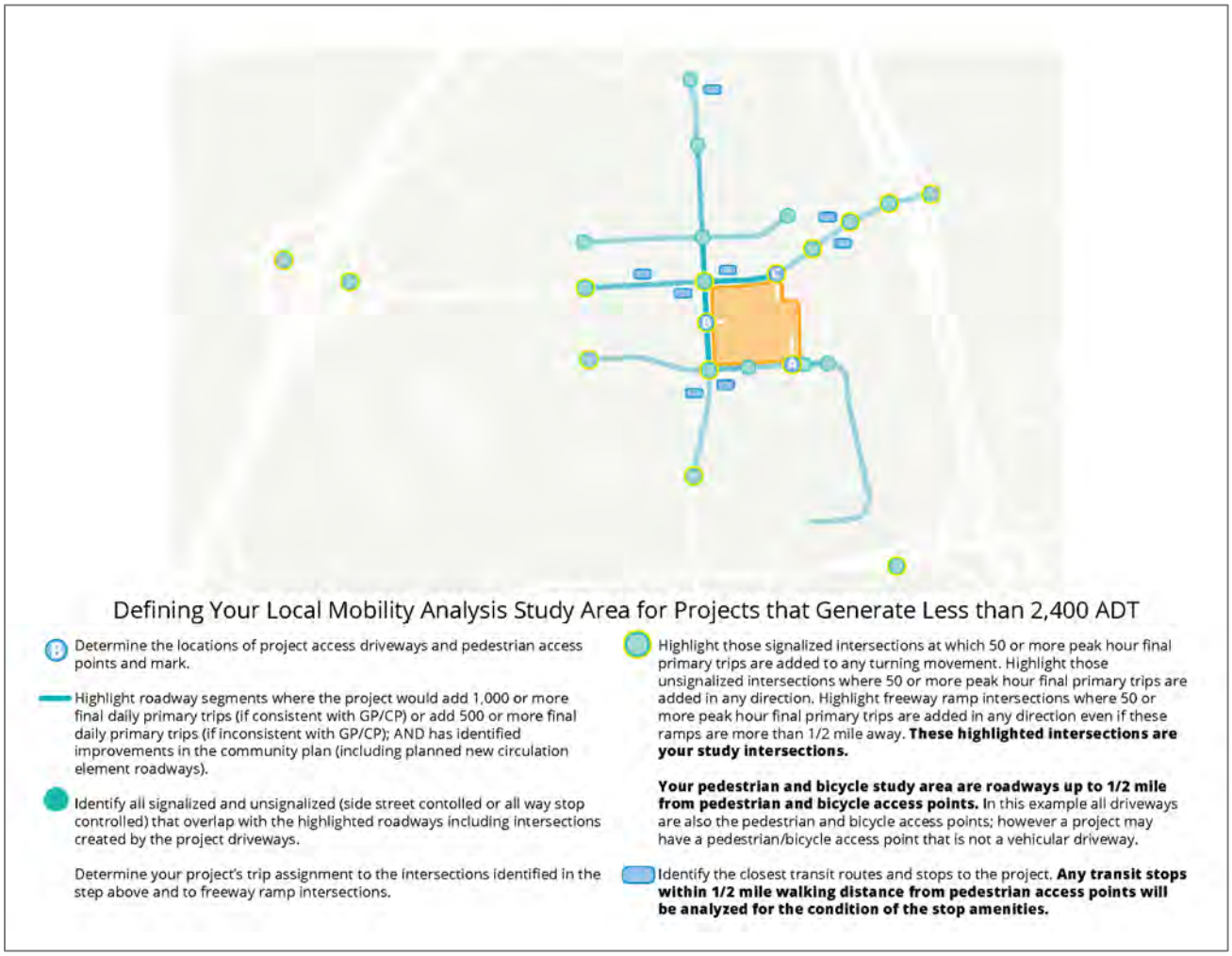
- All freeway ramp terminal intersections where a project adds 50 or more peak hour final primary (cumulative) (AM or PM)[6] net new trips in either direction must be analyzed regardless of their distance from the project site.

- For Projects that generate more than 2,400 daily final driveway[6] trips the typical study intersections are as follows:
  - All signalized intersections and signalized project driveways where the project will add 50 or more peak hour final primary (cumulative) trips[6] to any turning movement at the intersection.
  - All unsignalized intersections (side street stop controlled, all-way stop-controlled, and roundabouts) and unsignalized project driveways where the project will add 50 or more peak hour final primary (cumulative) trips[6] on any approach.
  - All freeway ramp terminal intersections where a project adds 50 or more peak hour final primary (cumulative) (AM or PM)[6] net new trips on any approach must be analyzed regardless of their distance from the project site.

- Roadway Segments: The study area should include any roadway segments where the project adds 1,000 or more daily final primary trips (cumulative trips)[6] if consistent with the Community Plan, or 500 or more daily final primary trips (cumulative trips) [6] if inconsistent with the Community Plan AND:
  - Have improvements identified in the community plan; OR
  - Not built to the community plan ultimate classification (including planned new circulation element roadways).
- City staff may determine additional study requirements apply due to location, project complexity, local transportation system complexity, or other local context.

For purposes of determining the extent of a the LMA, a project applicant may not segment or piecemeal project submittals to avoid studying a greater project area. If two or more adjacent and similar (in land uses and/or applicant/owner) are submitted as two separate projects within a two-year timeframe of each other, City staff may determine if a larger study area is needed based on the combined trip generation of the projects.

The following graphic provides additional guidance on determining the extents of the study for a project that generates less than 2,400 final daily driveway trips.



Study Scenarios

The following scenarios should be evaluated for the LMA:

- Existing Conditions
- Opening Year No Project Conditions: Analysis of the project's opening year. The traffic volumes should include any reasonably foreseeable projects and/or other ambient growth (background traffic that occurs naturally due to general population growth). Historical growth rates should be used to estimate ambient growth.

- Opening Year Plus Project Conditions: Analysis of the opening year volumes generated in the step above plus the project generated traffic.
- Phased Analysis: If the project is a large multi-phased development in which several stages of development activity are planned, each phase of the project may need to be evaluated to coincide with each major stage of development or increment of area transportation improvements. For example: Existing, Opening Year of Phase 1, Opening Year of Phase 2, etc.
- Horizon Year Analysis (Community Plan Amendments or Rezones): If the project requires a Community Plan Amendment or a rezone, community buildout horizon year analysis may be required. Coordinate with the Development Services Department's Transportation Development Section staff for study scenario requirements related to Community Plan Amendments or rezones.

Study Periods

The following study periods shall be analyzed:

- The morning and afternoon peak commute hours are analyzed, unless the land use is atypical and an alternate/additional study period is identified by City Staff. The peak hours are based on traffic counts (the procedure for collecting counts is described in the following section). For typical commute hours, the peak hour will fall between 7:00-9:00 AM and 4:00-6:00 PM.
- For areas near beaches or Mission Bay, the peak hours are during summer months (between Memorial Day and Labor Day, when public schools are not in session).
- Other timeframes may be required based on the project land uses and unique characteristics of the project.

CONDUCTING THE LOCAL MOBILITY ANALYSIS

Identifying Existing Conditions

A project is required to document the existing conditions of the local mobility system in the study area as identified in the "Extents of Study" section above, including field observations of biking, walking, transit, and roadway conditions/operations during study periods.

Existing conditions may include, but are not limited to, the following areas:

- Field Reconnaissance of:
  - Pedestrian facilities and observations on use of facilities
  - Bicycle facilities and observations on use of facilities
  - Location of nearby transit stops and observations of use of facilities
  - Roadway configurations, geometric features, sight distance, intersection lane configurations, intersection operations, presence of closely spaced or offset driveways or intersections, uneven lane utilization
  - Length of available turn lane storage and observations of typical maximum vehicle queues
  - Confirmation of traffic signal phasing and timing (from plans obtained from the City or Caltrans)
  - Adjacent land uses
  - Ramp meter queues and spill back onto local streets
- Transportation Data Collection
  - New transportation data is required if available data is older than two years, or if warranted by other changes in built environment conditions.
  - Pedestrian Counts: For each crosswalk leg at each study intersection.
  - Bicycle Counts: Turning movement counts at each study intersection.
  - Transit stations, routes, provision of bus-only lanes and/or turn-outs, and schedules.
  - Study period traffic counts: For typical commute hours, intersection turning movement data should be collected on Tuesday, Wednesday, or Thursday between 7:00-9:00 AM and 4:00-6:00 PM during non-holiday periods and not on the week of a holiday under fair

weather conditions. Counts should be taken when school is in session. Any intersection counts should include pedestrian and bicycle counts. For areas near beaches or Mission Bay, counts should be taken during summer months (between Memorial Day and Labor Day when public school is not in session) or should be adjusted to reflect typical summer conditions. Any deviation should be discussed with City Staff.

- If the project is a redevelopment project of which the existing uses are in operation at the time that the transportation data is collected, the trips associated with the existing use should be calculated by conducting driveway counts at all existing site driveways. The site trips should then be distributed to the study intersections and subtracted from the intersection traffic counts to represent the traffic volumes that would be present if the existing use were not in operation.

Analysis Methodology

Pedestrian Analysis

Pedestrian analysis should primarily focus on pedestrian connectivity, walkshed analysis, presence of adequate facilities, etc. However, in dense, urban environments featuring substantial pedestrian volumes, analysis of pedestrian facilities (i.e., sidewalks and crosswalks) may be required in accordance with the latest version of the HCM. Mid-block pedestrian crossing treatments should also be evaluated using available research and recommendations. Applicants should coordinate with the Development Services Department's Transportation Development Section on the need to perform HCM pedestrian analysis.

Bicycle Analysis

Project effects on existing and proposed bicycle facilities should be reviewed in consideration of the following:

- Bicycle analysis should primarily focus on bicycle connectivity, bikeshed analysis, presence of adequate facilities, etc.
- Consistency with the City's Bicycle Master Plan and the Community's Bicycle Mobility Element
- On-site bike parking supply as well as bikeshare bicycles that may be parked/stored on public sidewalks

Transit Analysis

Project effects on the transportation system should be evaluated in consideration of the following:

- Increased travel time for buses that could adversely affect on-time performance (intersection delay, corridor delay, movement delay (for transit))
- Conflicts (e.g., weaving, sight distance, etc.) involving buses at stop due to nearby driveways
- Planned and/or proposed transit improvements and stops identified in community plans, the RTIP and/or RTP within the study area

Project effects on transit system ridership is not typically considered an issue but may be evaluated under special circumstances (e.g., new office building along a bus line that already has substantial peak period ridership).

Systemic Safety Review

Study intersections should be compared to the City of San Diego Systemic Safety: The Data-Driven Path to Vision Zero [7] report to determine if a study intersection meets any hot spot criteria identified in Appendix C: Identification of Systemic Hotspots of the report. If a study intersection meets any of the criteria, the applicant should evaluate any potential countermeasures and coordinate with the Development Services Department Transportation Development Section staff to determine appropriate intersection improvements.

Signalized Intersections

Traffic operational impacts at signalized intersections shall be analyzed using standard or state-of-the-practice procedures consistent with the latest edition of the Highway Capacity Manual (HCM) published by the Transportation Research Board.

The following provides general guidelines for the parameters necessary to perform the analysis. For existing and opening year conditions within five years of commencement of the LMA, the parameters should generally be based on field measurements taken during traffic data collection or field

[7] https://www.sandiego.gov/sites/default/files/systemic-safety-the-data-driven-path-to-vision-zero.pdf

observation. For new study intersections or to analyze an opening year that is beyond five years of commencement of the LMA, the guidelines in **Table 5** can be used to determine input parameters.

TABLE 5: SIGNALIZED INTERSECTION ANALYSIS PARAMETERS

PARAMETER	GUIDANCE
Peak Hour Factor	Use the measured PHF by intersection approach that is obtained during traffic data collection. For new intersections or to analyze conditions beyond five years of commencing the LMA, refer to the HCM and maintain consistency across analysis periods, scenarios, and intersections.
Saturation Flow Rate	Use typical saturation flow rate presented in the HCM. The current typical saturation flow rate is 1,900 vehicles per hour per lane.
Signal Timing	Obtain signal timing plans from the appropriate agency and use the timing (by time of day if provided) for the analysis. For new traffic signals, typically use a maximum cycle length of 120 seconds for intersections near freeway interchanges or at the intersection of two arterial roadways. For all other conditions use a maximum of 90 seconds. For all conditions, ensure that the minimum pedestrian crossing times are utilized.
Conflicting Pedestrians and Pedestrian Calls	Use pedestrian count data if available. If not available, refer to the HCM for appropriate minimum values.
Heavy Truck Percentage	If available, use observed values from field observations or traffic counts. If unavailable, the minimum recommended value is 3%. Heavy truck percentages should be higher on truck routes.

PARAMETER	GUIDANCE
Lane Utilization Factor	If applicable, adjust the lane utilization factor based on field observations. Otherwise, refer to the HCM.

At isolated intersections that are not heavily congested, deterministic methods that apply HCM equations for each intersection in isolation can be used. There are several software packages that use deterministic methods such as Synchro, Vistro (previously called Traffix), and Highway Capacity Software.

For intersections that are closely spaced, have a unique geometry, or are part of a congested corridor, micro-simulation analysis should be performed. Micro-simulation can more accurately evaluate intersections with unique characteristics or in congested systems because the method accounts for how intersections within a system interact with one another. For example, if a vehicle queue extends from an intersection and blocks a different intersection, micro-simulation will account for that condition, whereas deterministic methods will not. Micro-simulation should also be considered when determining required turn lane storage if the analyst believes deterministic methods are not producing reasonable maximum or 95th percentile queue lengths. There are several micro-simulation software packages, such as SimTraffic (which is a module of Synchro) and Vissim.

It is recommended that the method and software proposed for use is coordinated with City staff as part of the study initiation process.

Unsignalized Intersections

Traffic operational impacts at unsignalized intersections (all-way stop, side-street stop, and roundabout intersections) shall be analyzed using standard or state-of-the-practice procedures consistent with the latest edition of the Highway Capacity Manual (HCM) published by the Transportation Research Board.

Operational analysis should be reported as follows:

- All-way stop intersections: Delay and corresponding level of service reported for the entire intersection as an average value

- Side-street stop intersections: Delay and corresponding level of service reported for the worst-case movement
- Roundabouts: Delay and corresponding level of service reported for the entire intersection as an average value

The software packages and methods described for signalized intersections also apply to stop-controlled intersections. Roundabout evaluations shall be calibrated to California data (shown below). LOS for roundabouts shall be determined using the HCM delay LOS thresholds for **signalized** intersections.

- The following California-specific values for critical headway and follow-up headway should be used to calibrate capacity models to determine appropriate lane numbers and arrangements:
  - Single-lane roundabouts: critical headway = 4.8 s, follow-up headway = 2.5 s.
  - Multilane roundabouts, left lane: critical headway = 4.7 s, follow-up headway = 2.2 s.
  - Multilane roundabouts, right lane: critical headway = 4.4 s, follow-up headway = 2.2 s.
- Using the above calibrated values, the following capacity models can be used in a manner consistent with the recommendations from NCHRP 572, with c equal to capacity (passenger car equivalents per hour) and v_c equal to the conflicting flow rate (passenger car equivalents per hour):
  - Single-lane: $c = 1440 \cdot \exp(-0.0010 \cdot v_c)$
  - Multilane right lane: $c = 1640 \cdot \exp(-0.0009 \cdot v_c)$
  - Multilane left lane: $c = 1640 \cdot \exp(-0.0010 \cdot v_c)$

Roundabout Analysis Evaluation Parameters
(Source: **Tian et al., 2007, Roundabout Geometric Design Guidance for the California Department of Transportation, page vii**)

For intersections that are closely spaced, have a unique geometry, or are part of a congested corridor, micro-simulation analysis should be performed. Micro-simulation can more accurately evaluate intersections with unique characteristics or in congested systems because the method accounts for how intersections within a system interact with one another. For example, if a vehicle queue extends from an intersection and blocks a different intersection, micro-simulation will account for that condition, whereas deterministic methods will not. There are several micro-simulation software packages, such as SimTraffic (which is a module of Synchro) and Vissim.

Roadway Segment Analysis

Roadway segment analysis should be evaluated for any roadway segment that has identified improvements (including planned new circulation element roadways) in the Community Plan and the project is expected to add 1,000 or more daily final primary trips (cumulative trips) if consistent with the Community Plan, or 500 or more daily final primary trips (cumulative trips) if inconsistent with the Community Plan. Roadways should be evaluated using **Appendix F**: Roadway Segment LOS by Classification and Average Daily Traffic (ADT). The intent of this analysis is to determine if the project results in the need to implement roadway improvements as identified in the Community Plan. The functional classification of the roadway segment should be evaluated in this analysis.

Freeway Interchange Analysis

Freeway analysis should focus on off-ramp queuing spillbacks onto freeway mainline. Studies should normally document changes in off-ramp maximum queues and propose mitigation for queues that spill back onto mainline (or exacerbate conditions already or projected to be) occurring. Freeway interchange analysis should be coordinated with Caltrans.

Identifying Off-Site Improvements

Off-site improvements to accommodate project traffic that address access, circulation and safety for all modes should be determined using the following analysis methods for each type of improvement:

Pedestrian Facilities

- Closing Sidewalk Gaps/Removing Obstructions:
  - The project should construct sidewalks to close sidewalk gaps adjacent to the project site.
  - The project should remove sidewalk obstructions that constrain pedestrian access route to less than four feet adjacent to the project site.
  - The project should construct curb ramps/meet accessibility standards for any intersections adjacent to the project site.
- Accommodating Pedestrian Demand:
  - The project should consider adding traffic calming and pedestrian-related signal timing changes (such as pedestrian hybrid beacons, leading pedestrian interval signal timing, etc.) to accommodate an increase in pedestrian demand on roadways and intersections adjacent to the project site.

Bicycle Facilities

- Accommodating Bicycle Demand:
  - The project should construct (or reserve space for) any planned bicycle facility per the Community Plan or Bicycle Master Plan.
  - The project should consider upgrading adjacent bicycle facilities by adding upgraded treatments (such as green bike lane paint, buffers, etc. where appropriate) to accommodate an increase in bicycle demand.

Transit Facilities

- Transit Priority Treatments/Improvements
  - The project should consider transit priority treatments when operational analysis determines a transit movement would experience LOS E or worse.
  - The project should consider transit priority treatments identified within the Community Plan for the study area.
- Proposed Transit Stops:
  - The project should consider accommodating transit stops to serve existing or proposed transit services, including those identified in the Community Plan, RTIP and/or RTP within the study area. The project should coordinate any identified transit stops with SANDAG, the Metropolitan Transit System (MTS) and/or the North County Transit District (NCTD).
- Transit Stop Amenities:
  - The project should coordinate with MTS and/or the NCTD, as applicable, to determine additional or upgraded transit stop amenities.

Signalized Intersections

- Adding or lengthening a turn lane:
  - Considerations for intersection improvements:

    When considering intersection improvements for circulation, access, and safety for all modes, factors that should be considered include, but are not limited to, conflicting pedestrian movements, existing and proposed bicycle facilities, transit priority, protected or permissive turn movement phasing, number of lanes, speed of prevailing traffic and expected queue lengths.
  - Left Turn Lane:

        - No Existing Left-Turn Lane: If the project adds traffic to an individual left turn movement causing the total number of peak hour left turns to exceed 100, consider adding a left turn lane.[8]
        - Existing Single Left-Turn Lane: If the project adds traffic to an individual left turn movement causing the total number of peak hour left turns to exceed 300, consider adding a second left turn lane.
    - Right Turn Lane:
        - No Existing Right-Turn Lane: If the addition of a right turn lane will not negatively affect other roadway users, will maintain a comfortable roadway environment, AND the project adds traffic to an individual right turn movement causing the total number of peak hour right turns to exceed 500, consider adding a right turn lane.
        - Existing Single Right-Turn Lane: If the addition of a right turn lane will not negatively affect other roadway users, will maintain a comfortable roadway environment, AND the project adds traffic to an individual right turn movement causing the total number of peak hour right turns to exceed 800, consider adding a second right turn lane. In addition to the considerations previously stated, dual-right turn (or more) treatments may require supplementary improvements including but not limited to no right-turn on red with blank-out signs, lead pedestrian intervals (LPIs) for pedestrians and cycle track treatment for bicyclists.
    - Lengthening a Turn Pocket:
        - If the project adds traffic to a turning movement and causes the 95th percentile queue to exceed the available turn pocket length, consider lengthening the turn pocket.

- Signal Timing Improvements/Signal Modifications:
    - Determined based on intersection operations analysis as follows:

[8] FHWA, *Signalized Intersections: Informational Guide*, August 2004. This source also provides additional factors which can be used to determine the need of a single left turn lane or additional left turn lanes including, left-turn volumes on the major and minor approaches, number of lanes, and vehicles per hour.

        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS F, or if the project adds traffic to a signal already operating at LOS F.
        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS E or F, or if the project adds traffic to a signal already operating at LOS E or F.
    - Types of signal improvements that can be considered are:
        - Updating signal split times
        - Transit signal priority improvements
        - Right turn overlap phasing
        - Signal phasing changes
        - Intelligent Transportation Systems (ITS) improvements

Unsignalized Intersections

- Considerations for intersection improvements:
    - When considering intersection improvements for circulation, access, and safety for all modes, factors that should be considered include, but are not limited to, conflicting pedestrian movements, existing and proposed bicycle facilities, transit priority, protected or permissive turn movement phasing, number of lanes, speed of prevailing traffic and expected queue lengths.
- Constructing a Roundabout or Traffic Signal at an all-way stop-controlled intersection: If the project causes the operations at an all-way stop-controlled intersection to degrade (see below), perform an intersection control evaluation that includes a signal warrant analysis and a roundabout LOS analysis. Prepare a roundabout conceptual layout (prepared by a consultant qualified/experienced in roundabout design) to determine the geometric impact of a roundabout. Coordinate with Development Services Department Transportation Development Section staff on appropriate intersection control improvement. Staff may request additional lifecycle safety and mobility
    - The intersection control evaluation should be prepared If the project causes an all-way stop-controlled intersection to degrade as follows:
        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an all-way stop-controlled intersection located to degrade to LOS F, or if the project adds traffic to an all-way stop-controlled intersection already operating at LOS F.

        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an all-way stop-controlled intersection to degrade to LOS E or F, or if the project adds traffic to a adds traffic to an all-way stop controlled intersection already operating at LOS E or F.

- Constructing a Roundabout or Traffic Signal at a side-street stop-controlled intersection: If the project causes the operations at a side-street stop-controlled intersection to degrade (see below), perform an intersection control evaluation that includes a signal warrant analysis and a roundabout LOS analysis. Prepare a roundabout conceptual layout (prepared by a consultant qualified/experienced in roundabout design) to determine the geometric impact of a roundabout. Coordinate with Development Services Department Transportation Development Section staff on appropriate intersection control improvement. Staff may request additional lifecycle safety and mobility
    - The intersection control evaluation should be prepared If the project causes a side-street stop-controlled intersection to degrade as follows:
        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes the **worst movement** of a side-street stop-controlled intersection to degrade to LOS F, or if the project adds traffic to the **worst movement** of a side-street stop-controlled intersection that is already operating at LOS F.
        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes the **worst movement** of a side-street stop-controlled intersection to degrade to LOS E or F, or if the project adds traffic to the **worst movement** of a side-street stop-controlled intersection that is already operating at LOS E or F.
- Improvements to a Roundabout Intersection
    - If the project causes a roundabout intersection to degrade determined based on operations analysis as follows:
        - Within a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS F, or if the project adds traffic to a roundabout already operating at LOS F.
        - Outside of a 1/2 mile path of travel of a *Major Transit Stop*: If the project causes an intersection to degrade to LOS E or F, or if the project adds traffic to a roundabout already operating at LOS E or F.
        - Determine improvements to the roundabout to reduce vehicle delay, such as metering traffic during peak hours or other geometric improvements - such

as adding a right turn bypass lane or multilane segments within the roundabout.

Roadway Segments

- Improvements identified in the community plan (including upgrading to ultimate classification):
    - If the project adds greater than 50% of total daily vehicle trips on the segment, the project should consider implementing the improvement as identified in the community plan.
    - If the project adds less than or equal to 50% of total daily vehicle trips on the segment, the project should evaluate its fair share towards the improvement.
- Planned new circulation element roadways:
    - If the project adds greater than 50% of total daily vehicle trips on the segment, the project should consider implementing the improvement as identified in the community plan.
    - If the project adds less than or equal to 50% of total daily vehicle trips on the segment, the project should evaluate its fair share towards the improvement.

In addition, the project should make improvements to study intersections and roadways to preserve consistency with Community Plan/PFFP/IFS identified improvements. The project applicant will have responsibility for the implementation of identified improvements.

The improvement types listed above are typical mobility improvements. Other types of mobility improvements may be proposed by the applicant or considered thorough coordination with the Development Services Departments Transportation Development Section staff.

Site Access and Circulation

The following items related to site access and circulation should be analyzed:

Driveway Analysis

- Review of proposed driveways (i.e., widths, curb returns, spacing, permitted turn movements, accommodation of delivery vehicles, etc.) for consistency with applicable City standards.
- Adequacy of throat depths to accommodate entering traffic. Detailed sight distance analysis (in accordance with the City's Street Design Manual) for driveways on streets with horizontal and/or vertical curvature (or with other potential sight distance constraints).

Internal Circulation

- Review of parking lots/garages for adequate vehicle circulation and parking maneuvers
- On-site circulation of bicycles and pedestrians including to/from parking areas and drop-off/pick-up activity
- On-site circulation of fire/emergency vehicles
- On-site circulation of delivery trucks and location of delivery bays/drop-off areas
- On-site circulation of trash trucks and location of trash enclosures

Parking/Loading Zones/Curbside Utilization

- On-Street Parking/Off-Street Parking
- Electric Vehicle (EV) Charging Stations
- Delivery Vehicle Space
- Areas for Transportation Network Company (TNC) Drop-Off/Pick-Up
- Bicycle/Scooter Share

City of San Diego
Project Information Form

Project Information

Project Name:					
Project Applicant					
Name:					
Address:					
Contact Information	Phone Number:		Email:		
Project Location and Context					
Project Address:					
APN:					
Driveway Cross Streets:					
Please attach a Project Location Map that clearly identifies project driveways and access points.					
Community Plan Area:		Land Use Designation:		Zoning Designation:	
Is any portion of the project located in an RTIP Transit Priority Area?: ☐Yes ■No					
Project Description (with Proposed Land Uses and Intensities):					

Number of Parking Spaces:	Vehicle Spaces	Accessible Spaces	Bicycle Spaces *(racks and secure Storage)*	Motorcycle Spaces

Identify any project features related to TDM and Identify any transportation amenities or travel demand management measures that are required based on the San Diego Municipal Code Section 142.0528 (transportation amenities) or the Climate Action Plan Consistency Checklist. For example: transit pass subsidies, unbundled parking, shuttle services, car share, bicycle supportive features (bike repair station, bike lockers, etc.).

Please attach a project site plan that clearly identifies the following:

- Land use types and quantities, and number of parking spaces provided (vehicle and bicycle) clearly identified.
- Driveway locations and type (full access, partial access, right in/out only) identified.
- Pedestrian access, bicycle access and on-site pedestrian circulation clearly identified.
- Location/distance of closest existing transit stop and proposed transit stops identified in RTIP (measured as walking distance to project entrance/or middle of parcel).

City of San Diego
Project Information Form

Trip Generation Estimates (calculated using the process described in the TSM):	Unadjusted Driveway Trips		Total Net New Trips	
	Daily:		Daily:	
	AM Peak Hour:		AM Peak Hour:	
	PM Peak Hour:		PM Peak Hour:	

Preliminary Screening Criteria

CEQA Transportation Analysis Screening 1) Select the Land Uses that apply to your project 2) Answer the questions for each Land Use that applies to your project *(if "Yes" in any land use category below then that land use (or a portion of the land use) is screened from CEQA Transportation Analysis)*	Screened Out **Yes**	Not Screened Out **No**
☐ 1. Redevelopment Project:		
a. Does the project result in a net decrease in total Project VMT?	○	●
b. Answer if yes to 1a. If the project replaces affordable housing with market rate housing, are there more market rate units planned than existing affordable units being replaced.	●	○
☐ 2. Residential Project:		
a. Is the project in a VMT/Capita Efficient Area (per SANDAG screening maps)?	○	○
b. Does the project include Affordable Housing? $\overline{Affordable\ Units} + \overline{Market\ Rate\ Units} = \overline{Total\ Units}$ All affordable units are screened out.	○	○
☐ 3. Commercial Employment Project:		
• Is the project in a VMT/Employee Efficient Area? (per SANDAG screening maps?)	○	○
☐ 4. Industrial Employment Project		
• Is the project in a VMT/Industrial Employee Efficient Area?	○	○
☐ 5. Retail/Public Facility/Recreational		
• Is the project locally serving: - Retail OR Public Facility OR Recreational	○	○
☐ 6. Small Project		
• For all components of a project that are not screened out above (all 'Yes' in a land use category), what is the daily unadjusted driveway trip generation? _____ Is it less than 300 daily trips?	○	○

Local Mobility Analysis			
Is your project consistent with the community plan and zoning?	○ Consistent ☐ Generates less than 1,000 daily trips (unadjusted driveway trips)	○ Inconsistent ☐ Generates less than 500 daily trips (unadjusted driveway trips)	
Will project development be phased?		In what month are traffic counts planned to be conducted?	

City of San Diego
Project Information Form

If a project generates 1,000 or more daily trips (consistent with community plan and zoning) or 500 or more daily trips (inconsistent with community plan or zoning), attach an exhibit showing the project's trip distribution percentages and project trip assignment using the process described in the TSM.

Land Use Designations

Specific land use designations that fit within residential, commercial employment, industrial and agricultural employment, public facilities, and retail are provided in **Table Appendix B-1** below.

TABLE APPENDIX B-1

LAND USE DESIGNATIONS

LAND USE TYPE*
Residential
Congregate Care Facility
Estate Housing
Mobile Home
Multiple Dwelling Unit (all sizes)
Retirement/Senior Citizen Housing
Single Family Detached
Commercial Employment
Hospital: Convalescent/Nursing
Hospital: General
Industrial/Business Park
Small Industrial/Business Park
Large Industrial/Business Park
Scientific Research and Development
Hotel (w/convention facilities/restaurant)
Motel
Resort Hotel
Military Base
Commercial Office
Corporate Headquarters/Single Tenant Office
Medical Office
Government Offices (Use is Primarily Office with Employees; not Providing In-Person Customer Service)
Industrial/Agricultural Employment
Industrial: Manufacturing/Assembly
Industrial: Rental Storage
Industrial: Truck Terminal

LAND USE TYPE*
Industrial: Warehousing
Agriculture
Regional Public Facilities/Services: Not Locally Serving
Airport
Cemetery
University
Community College
High School: Private
Junior High/Middle School: Private
Elementary School: Private
House of Worship: General
House of Worship: Without School or Day Care
Bus Depot
Regional Park or Beach, Ocean or Bay Park
Public Facilities/Services: Locally Serving
High School: Public
Junior High/Middle School: Public
Elementary School: Public
Day Care Center/Child Care Center
Library
Department of Motor Vehicles
Government Offices (Providing Primarily In-Person Customer Service)
Post Office
Park & Ride Lot
Transit Station
Neighborhood Park (developed or undeveloped)
Regional Retail (includes Recreational Uses): Not Locally Serving
Shopping Center: Community (100,000 sq. ft. or more GLA on 10 or more acres)
Shopping Center: Regional (300,000 sq. ft. or more GLA)
Marina
San Diego Zoo
Sea World
Golf Course

LAND USE TYPE*
Retail (includes Recreational Uses): May Qualify for Screening Based on Size (of less than 100,000 square feet)/Market Study. If multiple retail land uses are provided as one development, the sizes for all retail uses must be summed and considered together as a shopping center to determine whether the project qualifies for screening.
Automobile Services
Convenience Market Chain
Discount Store/Discount Club
Drugstore
Furniture Store
Lumber/Home Improvement Store
Nursery
Restaurant
Shopping Center: Neighborhood (30,000 sq. ft. or more GLA on 10 or fewer acres)
Specialty Retail Center/Strip Commercial
Supermarket
Financial Institution (Bank or Credit Union)
Bowling Center
Movie Theater
Racquetball/Tennis/Health Club
Sport Facility (Indoor or Outdoor)

*The above land use designations are sourced from the *San Diego Municipal Code, Land Development Code: Trip Generation Manual*.

Screening Criteria and Threshold Evidence

This appendix provides context and evidence for the screening criteria and thresholds for the transportation VMT CEQA analysis.

SCREENING CRITERIA

Development projects are presumed to have less than significant impacts to the transportation system, and therefore would not be required to conduct a VMT analysis, if any of the following criteria are established, based on substantial evidence.

Location Based Screening Maps

If a residential development is located in an area where VMT per Capita is less than 85 percent of the regional average, or a commercial employment development is located in an area where VMT per Employee is less than 85 percent of the regional mean, or an industrial or agricultural employment development is located in an area where the VMT per employee is less than 100 percent of the regional mean, the project is presumed to result in a less than significant CEQA impact.

Evidence – This presumption is consistent with the Office of Planning and Research *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) (OPR Technical Advisory), which provides that "residential and office projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with data from a travel survey or travel demand model can illustrate areas that are currently below threshold. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis."

Evidence **–** Purely industrial or agricultural uses are desired to be located in less VMT efficient, higher VMT areas in the City of San Diego. Placing these land intensive uses in areas with less efficient VMT allows land in efficient VMT areas to be more effectively utilized as high density residential and commercial uses. This threshold will encourage industrial and agricultural uses to

develop in locations appropriate for industrial and agricultural uses, leaving infill and more VMT efficient areas available for more dense uses.

Specifically, the OPR Technical Advisory provides that "of land use projects, residential, office, and retail projects tend to have the greatest influence on VMT. For that reason, OPR recommends the quantified thresholds described above for purposes of analysis and mitigation. Lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types."

Evidence – Although Transit Priority Areas (TPAs) are not screened out, most TPAs (using the RTIP TPA map) in the City of San Diego are located in screened out locations per the screening maps. Additionally, as described in the *City of San Diego Climate Action Plan Consistency Checklist, Technical Support Documentation*, projects located in a TPA can help reduce VMT by increasing capacity for transit-supportive residential and/or employment densities in low VMT areas and by doing so implement the General Plan's City of Villages strategy and the General Plan's Mobility Element. The increased density that is associated with projects in a TPA can increase transit ridership and therefore justify enhanced transit service which would in turn increase the amount of destinations that are accessible by transit and further increase transit ridership and decrease VMT.

Small Projects

In addition, small projects, which are whole projects with independent utility that would generate less than 300 average daily vehicle trips (ADT), would also not result in significant VMT impacts on the transportation system:

Evidence – The OPR Technical Advisory states that "projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant impact." This is supported by the fact that CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development, and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301(e)(2).) Typical project types for which trip generation increases relatively linearly with building footprint (e.g., general office building, single tenant office building, office park, or business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable

to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.

The OPR Technical Advisory uses the Institute of Transportation Engineers (ITE) trip generation rates. In San Diego, the trip generation for a small project was determined utilizing the City of San Diego trip generation rates for Commercial Office following the same OPR Technical Advisory rationale. These rates are listed below.

Trip Generation Rate		
Land Use	Unit	
Commercial Office	1,000 square feet (KSF)	City of San Diego Logarithmic Rate Ln(T)=0.756 Ln(x) +3.95; where T=trips and x=Gross Leasable Area (GLA) in 1,000 square feet.
Trip Generation for 10,000 SF Office		
Commercial Office	10 KSF	296

Using the City of San Diego's trip generation rates for a 10,000 sf commercial office the daily trip generation is calculated as 296. This number was rounded to develop the 300 daily trip small project definition.

Local Serving Retail

Local Serving Retail is defined in the City of San Diego as retail that is less than 100,000 square feet of total gross floor area and has a market area study that shows a market capture area that is less than three miles and serves a population of roughly 25,000 or less. Local serving retail includes the Neighborhood Shopping Center land uses from the City of San Diego Trip Generation Manual. If

the specific retail business is a regional serving business, City staff may require a VMT analysis. Hotels and motels are not considered local serving retail (such uses are employment uses for CEQA VMT analysis).

Evidence – The OPR Technical Advisory provides that "because new retail development typically redistributes shopping trips rather than creating new trips,[1] estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts." Local serving retail generally shortens trips as longer trips from regional retail are redistributed to new local retail.

Local Serving Public Facilities

Public facilities that serve the community and either produce very low VMT or divert existing trips from established local facilities. A replacement/remodel of an existing local serving public facility with no net increase in VMT would not require a VMT analysis for CEQA.

Evidence – Similar to local serving retail, local serving public facilities would redistribute trips and would not create new trips. Thus, similar to local serving retail, trips are generally shortened as longer trips from a regional facility are redistributed to the local serving public facility.

Affordable Housing Projects

Residents of affordable residential projects typically generate less VMT than residents in market rate residential projects. This pattern is particularly evident in affordable residential projects near transit[2]. In recognition of this effect, and in accordance with the OPR Technical Advisory, deed-restricted affordable housing projects meet the City's screening criteria and would not require a VMT analysis.

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[1] Lovejoy, et al., Measuring the impacts of local land-use policies on vehicle miles of travel: The case of the first big-box store in Davis, California, The Journal of Transport and Land Use, 2013.

[2] Newmark and Hass, "Income, Location Efficiency, and VMT: Affordable Housing as a Climate Strategy", The California Housing Partnership, 2015.

Projects that provide affordable housing affordable to persons with a household income equal to or less than 50 percent of the area median income as defined by California Health and Safety Code Section 50093, housing for senior citizens (as defined in Section 143.0720(e)), housing for transitional foster youth, disabled veterans, or homeless persons (as defined in 143.0720(f)), and that does not provide off-street parking spaces in an amount that exceeds the minimum required parking as set forth in SDMC Chapter 14, Article 2, Division 5 are not required to complete a VMT analysis.

Evidence –Affordable residential projects generate fewer trips than market rate residential projects[3]. As referenced in SDMC Section 143.0744, parking reductions from the standard parking requirements are applicable for affordable housing. This supports the assumption that the rate of vehicle ownership is expected to be less for persons that qualify for affordable housing. Additionally, senior citizens, transitional foster youth, disabled veterans, and homeless individuals also have low vehicle ownership rates.

Redevelopment Project

A redevelopment project that demonstrates that the total project VMT is less than the existing land use's total VMT is not required to complete a VMT analysis.

Evidence – Consistent with the OPR Technical Advisory, "[w]here a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds described above should apply."

If a residential or office project leads to a net increase in VMT, then the project's VMT per Capita (residential) or per Employee (office) should be compared to thresholds recommended above. VMT per Capita and VMT per Employee are efficiency metrics, and, as such, apply only to the proposed project without regard to the VMT generated by the previously existing land use.

[3] Newmark and Hass, "Income, Location Efficiency, and VMT: Affordable Housing as a Climate Strategy", The California Housing Partnership (2015).

If the project leads to a net increase in provision of locally-serving retail, transportation impacts from the retail portion of the development should be presumed to be less than significant. If the project consists of regionally-serving retail, and increases overall VMT compared to with existing uses, then the project would lead to a significant transportation impact. – OPR Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018).

Exception: If a project replaces affordable housing (either deed restricted or other affordable housing) with a smaller number of moderate-income or high-income residential units, the VMT assessment should incorporate an estimate of the aggregate VMT increase experienced by the displaced residents. The additional VMT due to displaced residents should be incorporated into the VMT per Capita for the project.

THRESHOLDS

If a project is required to complete a VMT analysis, the project's impacts to the transportation system would be significant if the VMT would exceed any of the thresholds below.

Residential

Threshold – 15% below regional mean VMT per Capita.

Evidence – The OPR Technical Advisory provides that "residential development that would generate vehicle travel that is 15 or more percent below the existing residential VMT per capita, measured against the region or city, may indicate a less-than-significant transportation impact."

Commercial Employment

Threshold – 15% below regional mean VMT per Employee.

Evidence – The OPR Technical Advisory provides that "office projects that would generate vehicle travel exceeding 15 percent below existing VMT per employee for the region may indicate a significant transportation impact."

Industrial and Agricultural Employment

Threshold – At or below regional mean VMT per Employee

Evidence – The OPR Technical Advisory provides that "[o]f land use projects, residential, office, and retail projects tend to have the greatest influence on VMT. For that reason, OPR recommends the quantified thresholds described above for purposes of analysis and mitigation. Lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types." Purely industrial and agricultural uses are desired to be located in locations that are less dense and not within urban areas which typically have higher VMT per employee. Industrial and agricultural land uses are land intensive; therefore, placing industrial and agricultural land uses in less urban areas characterized by having higher VMT per employee allows land in efficient VMT areas to be more effectively utilized as high density residential and commercial uses. This threshold is consistent with achieving an overall reduction in Citywide VMT as it recognizes that industrial and agricultural uses, which are relatively lower total VMT generating uses are most appropriate in areas that have a lower potential to reduce VMT because it results in more available land within areas with a high potential to achieve VMT reductions available for more dense development.

Regional Retail

Regional retail uses are retail uses that are larger than 100,000 square feet of total gross floor area.

Threshold – A net increase in total regional VMT

Evidence – The OPR Technical Advisory provides that "because new retail development typically redistributes shopping trips rather than creating new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts…Regional-serving retail development,… which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant."

Retail within the City of San Diego will be analyzed consistent with the OPR technical advisory. The City of San Diego has retail uses that attract trips from beyond a neighborhood which are defined in the Land Development Code Trip Generation Manual, Appendix C as "Community Shopping Center," and "Regional Shopping Center" which are characterized as being greater than 100,000 square feet.

Transportation Project Screening Criteria

This appendix provides a complete list of transportation projects that are presumed to have a less than significant impact, and therefore, would not be required to conduct VMT analysis.

Project types that would not result in increased vehicle travel have a less than significant impact and can be screened out from performing VMT analysis. These types of projects include:

- Rehabilitation/maintenance projects that do not add motor vehicle capacity
- Addition of bicycle facilities
- Intersection traffic signal improvements/turn-lane configuration changes
- Installation of roundabouts and traffic calming devices
- Additional capacity on local/collector streets if conditions are substantially improved for active transportation modes
- Implementation of roadways that are included in community plans approved after the comprehensive General Plan Update in 2008 if conditions are substantially improved for active transportation modes

The following specific project types are presumed to have a less than significant impact to VMT:

- 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 two miles in length

- Installation, removal, or reconfiguration of traffic lanes at intersections that are intended to provide operational or safety improvements
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Conversion of existing general purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel
- Addition of a new lane that is permanently restricted to use only by transit vehicles
- Reduction in number of through lanes
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow
- Installation of roundabouts or traffic circles
- Installation or reconfiguration of traffic calming devices
- Adoption of or increase in tolls
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase
- 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 non-motorized travel
- Installation of publicly available alternative fuel/charging infrastructure
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor
- Roadway striping modifications that don't change the number of vehicle though lanes

Additionally, City of San Diego roadway projects classified as major or primary arterials included in Community Plans updated after the 2008 General Plan Update would be presumed to have a less than significant impact. As such, no additional transportation analysis of induced VMT is necessary because these roadway projects are required to support citywide planned growth and implement the General Plan Goals, identified in **Table 2 of the TSM**, which are consistent with the intent of SB 743.

The legislative intent of SB 743 includes the following:

- Ensure that the environmental impacts of traffic, such as noise, air pollution, and safety concerns, continue to be properly addressed and mitigated through the California Environmental Quality Act.
- More appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas (GHG) emissions.

The City's Community Plan Updates, occurring after the City's General Plan Update in 2008, have provided for land uses that bring origins and destinations closer together and focused on providing for enhanced active mobility networks to promote pedestrian, bicycle, and transit travel in order to reduce VMT impacts while still meeting other City goals. Roadways proposed in these Community Plans are necessary to provide multi-modal access to these land uses and access to the wider San Diego active mobility network.

As transportation and land use are inextricably connected, roadways that are included in community plans are essential components of the City's comprehensive plans, programs, and regulations, which taken all together, will help the City meet and exceed City VMT targets. The City of San Diego's Planned (2050) Citywide average VMT efficiency of land uses compared to the base year Regional Average VMT efficiency is approximately 73% for Residential and 80% for Employment. These estimates include the roadway network as identified in the General Plan (2008) and the subsequent community plan updates. Therefore, with the planned land uses and roadway network in place, the VMT calculations indicate that the citywide VMT is reduced. Given this outcome it is reasonable to conclude that roadway projects identified in the City's Community Plan Updates have a less than significant impact on VMT.

Additionally, since the City's Community Plans were updated after 2008 after the adoption of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006, the associated environmental documents were required to analyze Greenhouse Gas (GHG) Emissions. As a part of the GHG emissions analysis, VMT analysis was required to determine the expected amount of GHG production from vehicular sources associated with each community plan. As such, all of the City's Community Plans have previously analyzed the VMT associated with the future roadway network and their environmental documents have already disclosed GHG related impacts.

TDM Strategies and Effectiveness Calculations

If a Project is found to have a significant transportation VMT impact, the impact must be mitigated by reducing the project's VMT per Capita or VMT per Employee. Typically, VMT is reduced by implementing strategies that achieve one of the following:

- Reducing the number of automobile trips generated by the project or by the residents or employees of the project.
- Reducing the distance that people drive.

Strategies that reduce single occupant automobile trips or reduce travel distances are called Transportation Demand Management (TDM) strategies.

The City of San Diego requires TDM, transportation amenities, and VMT reduction amenities for certain project types pursuant to the San Diego Municipal Code Section 142.0528 (Parking Standards Transit Priority Area Regulations), San Diego Municipal Code Sections 143.1101, 143.1102 and 142.1103 (Complete Communities: Mobility Choices), and the Climate Action Plan Consistency Checklist. Applicants should refer to the San Diego Municipal Code and the Climate Action Plan Consistency Checklist to determine if the project must comply with either policy.

There are several resources for estimating the reduction in VMT due to TDM measures such as the California Air Pollution Control Officers Association (CAPCOA), *Quantifying Greenhouse Gas Mitigation Measures* (2010) (Quantification Report) and the SANDAG Mobility Management Guidebook/VMT Reduction Calculator Tool (see Mitigation Section below). The applicant should coordinate with the Development Services Department's Transportation Development Section staff to determine the appropriate method for calculating TDM measure effectiveness. The methods described below are based on the CAPCOA Quantification Report.

Possible TDM measures that can be considered by the applicant to mitigate significant CEQA VMT transportation impacts are listed and organized by land use type. Additionally, measures that overlap with the VMT reduction amenities in the San Diego Municipal Code and the TDM in the Climate Action Plan Consistency Checklist are identified. A mitigation measure can be used to satisfy the San Diego Municipal Code and the Climate Action Plan Consistency Checklist if it is an overlapping measure.

Strategies are categorized as primary or supportive. A primary strategy has a VMT reduction effectiveness that can be directly calculated using the CAPCOA Quantification Report. Typically, the effectiveness calculation requires assumptions regarding participation or eligibility rates. While VMT reductions should not be applied for supportive strategies, they boost participation or eligibility rates and make the primary strategy more effective.

All assumptions regarding participation, eligibility, and other variables should be clearly documented for each applied TDM strategy. Also, as described in the CAPCOA Quantification Report, strategies are not directly additive, and when determining the overall VMT reduction, the VMT reduction

separately calculated for each of the individual strategies (within their overall TDM strategy category) should be dampened, or diminished, according to a multiplicative formula to account for the fact that some of the strategies may be redundant or applicable to the same populations. The multiplicative equation to accomplish this adjustment is as follows:

Overall % VMT Reduction = 1-(1-A)*(1-B)*(1-C)*(1-D)*…

Where A, B, C, D … = individual mitigation strategy reduction percentages

For example, if two strategies were proposed with corresponding VMT reductions of 20% and 10%, the equation would be [1-(1-20%)*(1-10%)] or [1-(80%*90%)], which equates to a 28% reduction rather than the 30% reduction that would otherwise be seen with a direct sum.

The following steps should be followed to calculate TDM program effectiveness:

Step 1: Calculate individual measures effectiveness.

Step 2: Use the multiplicative equation for each TDM Category (represented by different colors in the table below): Neighborhood/Site Enhancement, Parking Policy/Pricing, Transit System Improvements, and Commute Trip Reduction Programs. Check the Category Max Reduction and choose the smaller value of the two.

Step 3: Use the multiplicative equation to determine the combined effectiveness of the Neighborhood/Site Enhancement, Parking Policy/Pricing, and Transit System Improvements categories. Check the Cross-Category Max Reduction and choose the smaller value of the two.

Step 4: Use the multiplicative equation to determine the combined effectiveness of the Neighborhood/Site Enhancement, Parking Policy/Pricing, Transit System Improvements, and Commute Trip Reduction Programs. Check the Global Max Reduction and choose the smaller value of the two.

TABLE APPENDIX D-1

TDM STRATEGIES AND APPROXIMATE EFFECTIVENESS

TDM STRATEGY	PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Global Max Reduction For (Four Categories) Neighborhood/Site Enhancement, Parking Policy/Pricing, Transit System Improvements, and Commute Trip Reduction Programs: Urban: 60% Compact Infill: 30% Suburban Center: 15% Suburban: 10%						
Cross-Category Max Reduction For (Three Categories) Neighborhood/Site Enhancement, Parking Policy/Pricing, and Transit System Improvements: Urban: 45% Compact Infill: 20% Suburban Center/Suburban: 10%						
Neighborhood/Site Enhancement: **Category Max Reduction – Without NEV: 5% With NEV: 15%**						
Bicycle TDM						
Bicycle Infrastructure Improvements: Add additional bicycle facilities (Class I, II, or IV) or upgrade existing facilities to Class I, II, or IV.	**P**	RES, EMP, RET			X	0.6%-2.5%
Bike Share/Micromobility Fleet: A bike share/micromobility fleet provides shared bicycles and can help eliminate trips made by car during the day.	**P**	RES, EMP	X	X	X	0.2%-0.5%
Bicycle Riders Guide: A guide with bicycle routes, lanes, and paths to the site and bicycle parking facilities on the site make it easier for people to bike and walk to work. Development of individualized bicycle plans.	S	RES, EMP, RET				NA

TDM STRATEGY	PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Electric Bicycle/Micromobility Charging Station: Charging stations for electric bicycles/micromobility located throughout the project which can be used for longer trips than standard bicycles.	S	RES, EMP, RET		X	X	NA
Subsidized Bicycle Expenses: Provide monthly subsidy to bicyclists to encourage use.	S	RES, EMP	X			NA
Bicycle Parking: Provide dedicated secure parking (enclosed lockers or bicycle cages) and bicycle racks.	S	RES, EMP, RET	X		X	NA
Bicycle Supportive Programs: Participation and promotion of bicycle programs encourage employees/residents to bike and may include participation in Bike-to-Work Day, creating biking groups, developing a bicycle buddies program, gamifying bicycling (i.e. prizes/incentives for number of days biked).	S	RES, EMP				NA
DIY Bicycle Repair Stands: Do-it-yourself bicycle repair stands offer an air pump and basic tools for bicycle maintenance and repair. Typically, they have Phillip's/flat-head screwdrivers, combination wrenches, and Allen wrenches.	S	RES, EMP, RET		X	X	NA
On-Site Showers and Lockers: Shower and changing rooms help promote bicycling (and walking).	S	RES, EMP	X		X	NA
Pedestrian/Walking TDM						
Pedestrian Network Improvements: Designing a site for pedestrian connectivity with attractive and safe connections between buildings and to the surrounding streets can encourage people to walk more.	**P**	RES, EMP, RET			X	0-2%

TDM STRATEGY	PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Walking Supportive Programs: Walking programs encourage employees/residents to walk and may include mapping walking routes, creating walking groups or buddies, providing incentives, gamifying walking (i.e. prizes/incentives for number of days walked).	S	RES, EMP				NA
Subsidized Walking Expenses: Provide monthly subsidy to pedestrians to encourage use.	S	RES, EMP				NA
Other						
Traffic Calming: Implement traffic calming features on-site and on nearby roadways to reduce vehicle speeds and provide an enhanced environment for biking and walking.	**P**	RES, EMP			X	0.25-1%
Neighborhood Electric Vehicle Dedicated Network: Create a path/roadway system that accommodates NEVs and limits conflicts with standard automobiles. Can be used to estimate effectiveness of a network dedicated for an electric powered micromobility fleet, provided that a separate roadway network is available to the micromobility bikes/scooters.	**P**	RES, EMP				0.5-12.7%
Car Share: SEE COMMUTE TRIP REDUCTION PROGRAMS.	**P**	RES, EMP	X		X	0.4-0.7%
Passenger Loading Zones: Provide a dedicated passenger loading zone space convenient to main entries to encourage use of carpools, vanpools, and transportation network companies (TNCs) such as Uber and Lyft.	S	RES, EMP, RET			X	NA

TDM STRATEGY	PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Mobility Hub: Build a multi-modal transportation hub that includes access to transit, car share, bike/scooter share, on-site shuttle, package delivery facility, and other features to facilitate modal transfer and reduce vehicle trips.	S	RES, EMP, RET				NA

TDM STRATEGY	PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Parking Policy/Pricing **Category Max Reduction: 20%**						
Limit Parking Supply: Provide less parking supply as compared to typical parking supply at similar nearby developments. Limiting supply encourages use of other modes by not offering an abundance of convenient parking. To be effective, on-street parking must be priced and/or managed (through parking meters, residential parking permit districts, etc.). Additionally, the analyst must consider if the reduction in parking supply will result in single occupant TNC (Uber and Lyft) use, which does not reduce VMT.	**P**	RES, EMP, RET			X	5-12.5%
Unbundled Parking: Parking spaces in residential buildings are not associated with a specific unit and are offered at an additional cost or rented separately on a monthly or annual basis. To be effective, on-street parking must be priced and/or managed (through residential parking permit districts, etc.).	**P**	RES	X			2.6-13%
Priced Public Parking: Charge (or increase price by more than 25%) for parking on all public streets adjacent to and nearby the project.	**P**	RES, EMP				2.8-5.5%
Parking Cash-Out Program: Employees or residents receive the cash equivalent of the cost of a parking space if they forgo parking. This provides a financial incentive for either not owning a car or using it for commuting purposes. To be effective, on-street parking must be priced and/or managed (through residential parking permit districts, etc.).	**P**	RES, EMP	X			0.6-7.7% Commute

TDM STRATEGY	PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Residential Area Parking Permit Program: Implement permit program for use of on-street parking. This supports the limit on-site parking supply and unbundled parking strategies by discouraging regular and long-term parking on City streets. Permit programs reduce parking spillover from developments that have reduced parking supply or unbundled parking.	S	RES				NA
Time Limited Street Parking: Time limiting on-street parking spaces reduces the potential for vehicles to be stored for extended periods of time, which reduces overall vehicle ownership and encourages use of other modes.	S	RES, EMP				NA
Real-Time Parking Information: Information provided via a mobile app or sign that provides information on number of spaces available and where available spaces are located.	S	RES, EMP, RET				NA
Transit System Improvements Category Max Reduction: 10%						
Transit Network Expansion: Expand transit network through coordination with SANDAG or by providing private transit/shuttle service that connects to available public transit.	**P**	RES, EMP, RET				0.1-8.2%
Increase Transit Service Frequency/Speed: Coordinate with SANDAG or implement supplemental shuttle service to increase transit service headways. Increase transit vehicle speed and reliability by providing transit related improvements such as transit service priority at traffic signals, dedicated bus lanes, etc.	**P**	RES, EMP				0.02-2.5%

TDM STRATEGY		PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Transit Pass Subsidy: SEE COMMUTE TRIP REDUCTION PROGRAMS.		**P**	RES, EMP				0.3-20%
Enhance Transit Amenities: Coordinate with transit agencies to improve facilities at existing bus stops such as benches, shelters, lighting, bicycle parking, etc. in order to make transit a more attractive option.		S	RES, EMP, RET		X	X	NA
Transit Encouragement Programs: Transit programs encourage employees/residents to take transit may include transit route planning assistance/transit riders guide, free trial transit rides, transit field trips, creating transit groups or buddies, providing incentives, gamifying transit use (i.e. prizes/incentives for number of transit trips taken).		S	RES, EMP				NA
Transit App: Downloadable smart phone application providing schedule and stop information for private shuttles and public transit make transit use more convenient.		S	RES, EMP				NA
Onsite Transit Pass Outlet: Providing transit passes for sale onsite as a convenience to encourage use.		S	RES, EMP				NA
Commute Trip Reduction Programs **Category Max Reduction: 15% Overall VMT (25% Work VMT)**							
Voluntary Commute Trip Reduction Program. A voluntary, multi-strategy program for reducing commute trips. The program must include all	**Carpooling Program and Encouragement:** Establish a formal ride-sharing program that matches individuals and encourages carpooling.	**P**	RES, EMP	X			1-15% Commute VMT

TDM STRATEGY		PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
strategies listed to the right of this description. Any commute trip reduction strategy that is not listed can be added to the program (i.e. transit subsides), and its individual strategy effectiveness can be added using the dampening equation. The effectiveness is based on the combined individual strategies (with dampening) up to the max reduction listed below. **Max Reduction: 6.2% Commute VMT** (regardless of individual strategy effectiveness)	**Alternative Work Schedules:** Employees can set/modify their arrival/departure time to provide flexibility for carpooling (or use of other non-private auto modes). Alternative work schedules could be staggered starting times, flexible schedules, or compressed work weeks.	**P**	EMP	X			0.07-3.75% Commute VMT
	Vanpool Program: Vanpool programs help vanpools to form by matching drivers and passengers and by providing or subsidizing vans. This could be implemented through the SANDAG iCommute Program.	**P**	EMP	X			0.3-13.5% Commute VMT

TDM STRATEGY		PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
	Transportation Coordinator: A voluntary commute trip reduction program should have dedicated staff time to implement the program (at least part-time for a voluntary program). Transportation coordinators are responsible for developing, marketing, implementing, and evaluating TDM programs. Having dedicated personnel on staff helps to make the TDM program more robust, consistent and reliable.	S	RES, EMP				
	Preferential Carpool Parking: Designated parking spaces for carpools and vanpools near building entrances to encourage carpooling.	S	EMP	X		X	NA
	Bicycle End Trip Facilities: Provide on-site showers, lockers, and bicycle parking).	S	EMP	X		X	NA

TDM STRATEGY		PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Mandatory Commute Trip Reduction Program (Ordinance): A mandatory, multi-strategy program for reducing commute trips. The program must include all strategies listed to the right of this description. The effectiveness is based on the combined individual strategies (with dampening) up to the max reduction listed below. **Max Reduction: 21.0% Commute VMT** (regardless of individual strategy effectiveness)	**Carpooling Program and Encouragement:** Establish a formal ride-sharing program that matches individuals and encourages carpooling.	**P**	RES, EMP	X			1-15% Commute VMT
	Transit Pass Subsidy: Provide subsidized transit passes through programs such as Commuter Check or by purchasing passes to provide a financial incentive for employees or tenants to use transit.	**P**	RES, EMP	X	X		0.3-20% Commute VMT
	Alternative Work Schedules: Employees can set/modify their arrival/departure time to provide flexibility for carpooling (or use of other non-private auto modes). Alternative work schedules could be staggered starting times, flexible schedules, or compressed work weeks.	**P**	EMP	X			0.07-3.75% Commute VMT

TDM STRATEGY		PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
	Vanpool Program: Vanpool programs help vanpools to form by matching drivers and passengers and by providing or subsidizing vans. This could be implemented through the SANDAG iCommute Program.	**P**	EMP	X			0.3-13.5% Commute VMT
	Commute Trip Reduction Marketing: The commute trip reduction program will be marketed through use of kiosks, flyers, posters, and emails. New employees/tenants are provided information on their travel options and program incentives.	**P**	RES, EMP	X	X	X	0.8-4.0% Commute VMT
	Car Share: Provide on-site car share (with dedicated car share parking spaces) to provide an option for use of a car to residents or employees that choose to not own a car.	**P**	RES, EMP	X		X	0.4-0.7% Commute VMT

TDM STRATEGY		PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
	Transportation Coordinator: A commute trip reduction program should have dedicated staff time to implement the program. Transportation coordinators are responsible for developing, marketing, implementing, and monitoring/ evaluating TDM programs.	S	RES, EMP				
	Preferential Carpool Parking: Designated parking spaces for carpools and vanpools near building entrances to encourage carpooling.	S	EMP	X		X	NA
	Bicycle End Trip Facilities: Provide on-site showers, lockers, and bicycle parking).	S	EMP	X		X	NA
Commute Trip Reduction Additional Strategies (that are not part of the voluntary or mandatory programs listed above).							
Transit Pass Subsidy: Provide subsidized transit passes through programs such as Commuter Check or by purchasing passes to provide a financial incentive for employees or tenants to use transit.		**P**	RES, EMP	X	X		0.3-20% Commute VMT
Price Workplace Parking: Price workplace parking to encourage use of alternate commute modes.		**P**	EMP	X			0.1-19.7% Commute VMT

TDM STRATEGY	PRIMARY (P) OR SUPPORTIVE (S)	APPLICABLE LAND USES: RESIDENTIAL (RES) EMPLOYMENT (EMP), RETAIL (RET)	CAP CONSISTENCY CHECKLIST	TRANSPORTATION AMENITY	VMT REDUCTION AMENITY	VMT REDUCTION RANGE
Telecommuting: Telecommuting allows employees to work from home and reduces trips made to the employer site.	**P**	EMP	X			0.2-5.5% Commute VMT
Commute Trip Reduction Marketing: The commute trip reduction program will be marketed through use of kiosks, flyers, posters, and emails. New employees/tenants are provided information on their travel options and program incentives.	**P**	RES, EMP	X	X	X	0.8-4.0% Commute VMT
Guaranteed Ride Home Program: Employees who use transit, carpools, or vanpools are guaranteed a ride home in case of emergency or if they need to work late which helps to reduce concerns about using alternative modes.	S	RES, EMP		X		
Last Mile Connections: Provide means for connecting the project to the closes transit stop (subsidized TNC rides, shuttle service, etc.).	S	RES, EMP				

Roadway Segment LOS by Classification and Average Daily Traffic (ADT)

Table Appendix F-1 provides street classifications and associated LOS thresholds dependent on the roadway's average daily traffic (ADT).

TABLE APPENDIX F-1

ROADWAY CLASSIFICATIONS, LOS, AND AVERAGE DAILY TRAFFIC (ADT)

STREET CLASSIFICATION	LANES	LEVEL OF SERVICE				
		A	B	C	D	E
Expressway	8 lanes	40,000	56,000	80,000	93,500	107,000
Expressway	7 lanes	35,000	49,000	70,000	82,000	93,500
Expressway	6 lanes	30,000	42,000	60,000	70,000	80,000
Prime Arterial[1]	8 lanes	35,000	50,000	70,000	75,000	80,000
Prime Arterial[1]	7 lanes	30,000	42,500	60,000	65,000	70,000
Prime Arterial	6 lanes	25,000	35,000	50,000	55,000	60,000
Prime Arterial[10]	5 lanes	20,000	28,000	40,000	45,000	50,000
Prime Arterial[11]	4 lanes	17,500	24,500	35,000	40,000	45,000
Major Arterial[2]	7 lanes	22,500	31,500	45,000	50,000	55,000
Major Arterial	6 lanes	20,000	28,000	40,000	45,000	50,000
Major Arterial[3]	5 lanes	17,500	24,500	35,000	40,000	45,000
Major Arterial	4 lanes	15,000	21,000	30,000	35,000	40,000
Major Arterial	3 lanes	11,250	15,750	22,500	26,250	30,000
Major Arterial	2 lanes	7,500	10,500	15,000	17,500	20,000
Major Arterial *(one-way)*[4]	3 lanes	12,500	16,500	22,500	25,000	27,500
Major Arterial *(one-way)*[5]	2 lanes	10,000	13,000	17,500	20,000	22,500

STREET CLASSIFICATION	LANES	LEVEL OF SERVICE				
		A	B	C	D	E
Collector *(with two-way left turn lane)*	5 lanes	12,500	17,500	25,000	30,750	37,500
Collector *(with two-way left turn lane)*	4 lanes	10,000	14,000	20,000	25,000	30,000
Collector *(with two-way left turn lane)*	3 lanes	7,500	10,500	15,000	18,750	22,500
Collector *(with two-way left turn lane)*	2 lanes	5,000	7,000	10,000	13,000	15,000
Collector *(without two-way left turn lane)*	4 lanes	5,000	7,000	10,000	13,000	15,000
Collector *(without two-way left turn lane)*[6]	3 lanes	4,000	5,000	7,500	10,000	11,000
Collector *(without two-way left turn lane)*	2 lanes	2,500	3,500	5,000	6,500	8,000
Collector *(with no fronting property)*	2 lanes	4,000	5,500	7,500	9,000	10,000
Collector *(one-way)*[7]	3 lanes	11,000	14,000	19,000	22,500	26,000
Collector *(one-way)*[8]	2 lanes	7,500	9,500	12,500	15,000	17,500
Collector *(one-way)*[9]	1 lane	2,500	3,500	5,000	6,500	7,500
Sub-Collector *(Single-family)*	2 lanes	--	--	2,200	--	--

Notes:

The volumes and the average daily level of service listed above are only intended as a general planning guideline. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

[1]Calculated assuming that each additional lane above a 6-Ln Arterial adds 5,000 ADT for LOS A, 7,500 ADT for LOS B and 10,000 ADT for LOS C, D, and E

[2]Calculated assuming that ADT is 1/2 way between steps of a 6-Ln Major Arterial & 6 Ln Prime Arterial

[3]Calculated assuming that ADT is 1/2 way between steps of a 4-Ln Major Arterial & 6 Ln Major Arterial

[4]Calculated using: Capacity = 0.5 (6-Ln Major (2-way) + Added Capacity of 2,500 ADT)

[5]Calculated using: Capacity = 0.5 (4-Ln Major (2-way) + Added Capacity of 2,500 ADT)

[6]Calculated using: Capacity = 4-Ln Collector (no center lane) * (3/4)

[7]Calculated using: Capacity = 2-Ln Collector (one-way) * (3/2)

[8]Calculated using: Capacity = 0.5 (4-Ln Collector w/continuous left turn lane) + Added Capacity of 2,500 ADT)

[9]Calculated using: Capacity = 0.5 (2-Ln Collector w/ continuous left turn lane). Capacity took into account parking friction from both sides of roadway

[10] Calculated by applying same differences between 8-Ln Prime & 7-Ln Prime & 7-Ln Prime & 6-Ln Prime

[11] Calculated assuming ratio between 6-Ln Prime & 6-Ln Major applied to 4-Ln Major