Transportation Impact Analysis Guidelines

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Prepared by: FEHR & PEERS

Table of Contents

Appendices

List of Figures

List of Tables

List of Abbreviated Terms

ADA	Americans with Disabilities Act
ADT	average daily traffic
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CEQA	California Environmental Quality Act
City	City of Escondido
CSTDM	California Statewide Travel Demand Model
DPW	Department of Public Works
EIR	environmental impact report
FHWA	Federal Highway Administration
GHG	greenhouse gas
GPA	General Plan Amendment
HCM	Highway Capacity Manual
ICE	intersection control evaluation
ITE	Institute of Transportation Engineers
IX	internal-to-external
LMA	Local Mobility Analysis
LOS	level of service
MTS	Metropolitan Transit System
CA MUTCD	California Manual on Uniform Traffic Control Devices
MXD	mixed-use development
NCTD	North County Transit District
O-D	origin-destination
OPR	Governor's Office of Planning and Research
PCE	passenger car equivalent
PHF	peak hour factor
RTP	Regional Transportation Plan
SANDAG	San Diego Association of Governments
SB	Senate Bill

SCS	Sustainable Communities Strategy
TAZ	transportation analysis zone
TDM	transportation demand management
TIAG	Transportation Impact Analysis Guidelines
TSM	transportation system management
XI	external-to-internal
XX	external-to-external

1. Introduction

1.1 Background

Under the California Environmental Quality Act ("CEQA"), all phases of a project must be considered when evaluating its impact on the environment: planning, acquisition, development, and operation. The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency ("Lead Agency") involved. Thresholds of significance, as defined in California Environmental Quality Act Guidelines ("CEQA Guidelines") section 15064.7(a), may assist lead agencies in determining whether a project may cause a significant impact. In the past, CEQA review of a project's transportation impacts focused primarily on metrics related to vehicle delay and Level of Service ("LOS"). These analysis requirements involved a quantitative analysis to determine whether a project may have a significant impact on the roadway network pursuant to CEQA.

CEQA Changes

On September 27, 2013, Governor Jerry Brown signed Senate Bill 743 ("SB 743") into law and started a process intended to fundamentally change transportation impact analysis as part of CEQA compliance. A key element of this law is the elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts under CEQA. The change was to balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and the reduction of greenhouse gas emissions.

As a result, the Governor's Office of Planning and Research ("OPR") updated CEQA Guidelines to establish new criteria for determining the significance of transportation impacts. Based on feedback from the public, public agencies, and various organizations, OPR recommended that Vehicle Miles Traveled ("VMT") be the primary metric for evaluating transportation impacts under CEQA. VMT refers to the amount and distance of automobile travel attributable to a project. Pursuant to CEQA Guidelines section 15064, transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. Other relevant considerations may include the effects of the project on transit and non-motorized travel.

SB 743 does not prevent a city or county from continuing to analyze local mobility in terms of delay or LOS as part of other plans (e.g., general plans); studies; congestion management plans; or transportation improvement plans, but these metrics may no longer constitute the basis for CEQA transportation impacts as of July 1, 2020.

City General Plan Goals and Policies

The City of Escondido's ("City's") General Plan (Adopted 2012) forms the foundation upon which all land use decisions in the City are based. The General Plan includes goals and policies that guide the City's growth, and many of these policies relate to and support the intent of SB 743. The City has also adopted

specific greenhouse gas ("GHG") reduction targets and has completed a climate action plan ("CAP") that identifies policies and programs designed to meet those targets. Among other things, approaches for reducing GHGs in the transportation sector address vehicle efficiency and low-carbon fuels, as well as measures designed to reduce annual VMT. VMT-reduction measures include alternatives to passenger vehicle travel, land use policies that incentivize compact development, and incentives and disincentives aimed at changing individual behavior through transportation demand management ("TDM") practices.

SB 743-Related General Plan Policies

The General Plan goals and policies that are most consistent with the intent of SB 743 are those regarding planned improvements, including districts that contain a mix of uses, an accessible and integrated multi-modal network, and improvements that enhance connectivity to major transit stations. For example, promoting integrated transportation and land use decisions that enhance smart growth development, requiring sidewalks along all classified streets designated on the Circulation Plan, requiring larger new developments to provide connections to existing and proposed bicycle routes, and encouraging employers to offer incentives to their employees to promote carpooling and other alternative modes are among the existing City of Escondido policies that align with SB 743.

The General Plan requires analysis of a project's impacts to roadway level of service and implementation of measures necessary to reduce impacts to level of service below specified thresholds. A Local Mobility Analysis is required for General Plan conformance and to evaluate the effects of a proposed development project on traffic operations.

1.2 Purpose

The City of Escondido's goal is to achieve a safe, efficient, accessible, and sustainable transportation system that meets the needs of all users. Transportation improvements and mitigation from proposed land development projects should be consistent with City-adopted plans and policies, as well as regional and state environmental and legislative requirements. The Transportation Impact Analysis Guidelines ("TIAG") provides criteria on how projects should be evaluated for consistency related to the City's transportation goals, policies, and plans, and through procedures established under CEQA. The TIAG establishes the contents and procedures for preparing a Transportation Impact Analysis in the City of Escondido.

The purpose of the TIAG (and a Transportation Impact Analysis) is to inform land use and development decisions by providing qualitative and quantitative criteria to assess the transportation system within the vicinity of a land development project. The TIAG aids in determining appropriate mitigation under CEQA, as well as site-specific improvements to the transportation system to accommodate project traffic.

Reasons to perform a Transportation Impact Analysis:

- Provide public agencies with a mechanism for managing transportation impacts of land development projects.

- Provide applicants with transportation-related site planning recommendations.
- Provide a method for analyzing the transportation effects of development projects.
- Establish a framework for transportation mitigation measures and project conditions for land development.
- Implement CEQA and General Plan policies.

1.3 Objectives

The following objectives are intended to provide consistency between local, regional, and state policies in forecasting, describing, and analyzing the effects of land development on transportation and circulation for all transportation modes and users:

- Provide clear direction to applicants and consultants to better meet expectations, increase the efficiency of the review process, and minimize delays.
- Provide scoping procedures and recommendations for early coordination during the planning/ discretionary phases of a land development project.
- Provide guidance in determining when, what type, and how to prepare a Transportation Impact Analysis.
- Help achieve consistency, uniformity, and accuracy in the preparation of a Transportation Impact Analysis.
- Promote quality assurance in transportation studies by agreeing to the assumptions, data requirements, study scenarios, and analysis methodologies.
- Provide consistency and equity in the identification of measures to mitigate the transportation impacts generated by land development.
- Assist City staff in developing objective recommendations and project conditions of approval as part of the land development discretionary review process.
- Help to ensure that City transportation studies are in conformance with all applicable City, region and state regulations, including legislative requirements as part of CEQA.

1.4 CEQA vs. Non-CEQA Transportation Analysis

The City TIAG is a comprehensive manual for both CEQA VMT analysis and discretionary/entitlement non-CEQA Local Mobility Analysis ("LMA"). The TIAG provides guidance for the two elements of transportation analyses needed to comprehensively assess the potential effects from new development to the City's roadway and mobility system.

CEQA Transportation Analysis (VMT Analysis)

CEQA requires VMT analysis for compliance with state policies to evaluate a project's potential impacts related to VMT significance criteria. The VMT analysis will:

- Enable proposed development projects to comply with current CEQA requirements as a result of the implementation of SB 743.
- Outline the City's VMT significance thresholds, screening criteria, and methodology for conducting the transportation VMT analysis.
- Help determine if mitigation is required to offset a project's significant VMT impacts.
- Identify VMT reduction measures and strategies to mitigate potential impacts below a level of significance.
- Reduce the need to widen or build roads through effective use of the existing transportation network and maximizing the use of alternative modes of travel throughout the City.

Non-CEQA Transportation Analysis (Local Mobility Analysis)

An LMA is required by the City of Escondido to assess transportation effects and ensure orderly development, public safety, adequate infrastructure, and consistency with the General Plan. The LMA analysis will:

- Specify the City's screening criteria, study area, and methodologies to assess the potential need for off-site operation improvements to the project study area transportation network.
- Ensure that the local transportation facilities will have sufficient capacity to accommodate the project's demand on various modes of travel, and that improvements identified by the City are constructed when needed consistent with the City's adopted standards and policies.
- Ensure consistency with transportation planning documents (such as bicycle and pedestrian planning efforts).
- Establish measures of effectiveness to maintain vehicular LOS consistent with the City's General Plan Mobility and Infrastructure Element, as may be amended from time to time.
- Facilitate site project access and roadway frontage infrastructure improvements to serve the project vicinity.
- Identify project-level design features, standards, and/or conditions appropriate to, and as applied to facilitate General Plan consistency review and make determinations on new land use development projects. General Plan consistency findings, when required by State law or by the City's Municipal or Zoning Code, shall be based upon the implementation of the recommended design features, standards, and/or conditions and be the basis to make one or more findings to disapprove, approve, or conditionally approve a land use development project application.

1.5 Process Overview

The TIAG is intended for the use by City staff, project applicants, consultants, other agencies/jurisdictions, the general public, and decision makers to evaluate transportation effects of proposed land development and infrastructure projects going through the environmental or discretionary planning/entitlement processes within the jurisdiction of the City of Escondido.

The following summarizes the typical process for completing a Transportation Impact Analysis in the City of Escondido:

Step 1 – Complete Part 1 of the Scoping Agreement: The applicant will complete and submit a scoping agreement to City staff to determine if a Transportation Impact Analysis is required. If the project is screened out, a technical memorandum is required to document the decision, screening process, and justification for why an analysis is not required. If not screened out, the applicant must complete Part 2 of the Scoping Agreement and the project proceeds to Step 2.

Step 2 – Determine Study Requirements: The consultant will meet or coordinate with City staff regarding the scoping agreement items including the proposed project description, location, site plan, site access, estimated trip generation and trip distribution, study area, methodology requirements, and any other specific issues to be addressed in the Transportation Impact Analysis.

Step 3 – Conduct Transportation Impact Analysis and Submit Draft: The consultant will prepare the Transportation Impact Analysis consistent with the requirements established in Step 2 (and as outlined in the TIAG) and will submit a draft to the City. The City will provide written comments on the draft study. During this process, the consultant may request a meeting with City staff to clarify study requirements or comments received on the draft study.

Step 4 – Submit Final Transportation Impact Analysis: The consultant will address all City comments and produce a Final Transportation Impact Analysis to be approved by staff. Multiple iterations of study review may be necessary to adequately address all staff comments. It is critical that staff and the consultant coordinate closely during review process to ensure productive and efficient communications in achieving the mutual goal to finalize the Transportation Impact Analysis. A record identifying how each comment was addressed should also accompany the Final Transportation Impact Analysis. Depending on whether the Transportation Impact Analysis included a VMT analysis, the final mitigation recommendations or improvements will be in the CEQA Findings or the discretionary Conditions of Approval.

It should be noted that the City may update the TIAG on an as-needed basis to reflect the best state of practice methodologies and changes in CEQA requirements. As such, the City will continually review the TIAG for applicability and coordinate with other jurisdictions and professionals to ensure the most recent guidance and best practices are being applied for land development review and transportation analysis. Additional information regarding the applicability of the procedures outlined in this document for various project types are provided in **Chapter 2**.

The TIAG is not binding on any decision maker and should not be substituted for the use of independent professional judgment and evaluation of evidence in the record. The City also reserves the right to request further, project-specific information in its evaluation that may not be identified or described in this document.

City Review and Outside Agency Coordination

Transportation Studies will be reviewed by appropriate City of Escondido staff.

If a project will affect another agency or jurisdiction, such as the California Department of Transportation ("Caltrans"), San Diego Association of Governments (SANDAG), San Diego Metropolitan Transit System (MTS), North County Transit District (NCTD), or neighboring cities, coordination with that agency or jurisdiction may be required and will be identified during the scoping process. City of Escondido staff can provide guidance and contact information for other agencies or jurisdictions.

2. Transportation Impact Analysis Initiation

The applicant should first complete the Transportation Impact Scoping Agreement (form in Appendix A) and coordinate with City staff to determine the Transportation Impact Analysis requirements.

2.1 Types of Transportation Studies

CEQA and LMA requirements should be determined separately, as CEQA VMT analysis and/or LMA may apply to any type of transportation study. The following types of transportation studies (or a combination) may be required:

- **No Transportation Analysis Required**: If CEQA does not apply to a project (e.g., is screened out or the project is ministerial) and the project meets LMA screening criteria, a Transportation Impact Analysis is not required. A technical memorandum accompanied by the completed Part 1 of the Scoping Agreement is required to document justification for why an analysis is not required.
- **Detailed CEQA VMT Analysis and LMA Required**: Transportation studies that include both a CEQA VMT analysis and LMA are required for projects that are not screened out based on the City's screening criteria.
- **LMA Only Required**: Transportation studies only require an LMA when the project meets CEQA VMT screening criteria in **Section 3.3**. The findings of the VMT screening analysis must be documented in the Transportation Impact Analysis. A technical memorandum accompanied by the completed Part 1 of the Scoping Agreement is required to document justification for why transportation CEQA analysis is not required.

2.2 Determining Study Requirements

Scoping Agreement

The consultant will prepare a Scoping Agreement (Appendix A) before coordinating with the City to ensure all information needed to determine the study requirements are compiled, including the key items outlined below.

Project Location

- Project location and vicinity map
- Zoning and General Plan land use designation of the project site (to demonstrate consistency)

Detailed Project Description

- Land uses and intensities.
- Gross and developable acreage or building square footage or number of proposed residential units.
- Number of parking spaces: vehicle (including accessible spaces), bicycle (racks and secure storage), motorcycle, and electric vehicle (EV).

Site Plan

- Driveway locations and access type (e.g., full access, partial access, right in/out only).
- Pedestrian access, bicycle access, and on-site pedestrian circulation.
- Location/distance of nearest existing transit stop (measure as walking distance to project entrance/or middle of parcel).
- Location of any planned sidewalks or bikeways identified in the Bicycle Master Plan and other City planning documents within ¼ mile of the project location.

Trip Generation

The consultant should identify the number of new daily and peak hour driveway vehicle-trips added by the project as described in this section.

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.

For the City of Escondido, the following trip generation sources should be used:

- The current version of SANDAG's *(Not So) Brief Guide of Vehicle Traffic Generation Rates for the San Diego Region*. The SANDAG guide provides average trip generation rates for a wide variety of land use categories.
- If the proposed use is not included in SANDAG's *(Not So) Brief Guide of Vehicle Traffic Generation Rates for the San Diego Region*, City staff, at their sole discretion, may consider an applicable rate published by the Institute of Transportation Engineers ("ITE") in the most recent edition of the *ITE Trip Generation Manual*.
- Where uses are not included in either the SANDAG or ITE documents, trip generation should be derived from locally observed data that includes trip generation samples from at least three similar facilities at the City's discretion. The facilities selected as samples, and the timing and methods of data collection, must be approved by City staff prior to data collection.
- For existing facilities that are being expanded, trip generation should be determined by surveying the existing use to generate a project-specific trip generation rate. The survey of the existing use should be conducted using driveway counts or SANDAG/ITE published rates at the City's discretion.

- The most detailed project information should be used to determine a project's trip generation estimate. For example, if the project's building square footage and the project acreage are both known, the building square footage is more detailed; therefore, it should be used to estimate the trip generation.

Trip Reductions

Reasonable reductions to trip rates may also be considered, including the following (as shown on the trip generation process shown on **Figure 1**):

Internal Capture

For mixed-use development projects, it is appropriate to estimate the interaction between the project uses. For example, for a project that has retail, residential, and office uses, with compatible supporting land uses within a ¼ mile walking distance, trip reductions may be used. Most trip generation data is for stand-alone, single land uses and does not account for the interaction between land uses for a mixed-use development project.

Trip internalization for mixed-use developments (if applicable) should be calculated using state of the practice methodologies. The *ITE Trip Generation Handbook* provides a procedure for calculating internal trips for mixed-use projects. SANDAG's mixed-use trip generation or ("MXD") methodology may also be considered. The consultant may also propose a method for determining adjustments to trip generation for mixed-use projects, with approval from City staff.

Trip generation adjustments to account for internal capture should be applied to the raw trip generation calculated for each land use.

Alternative Modes

Most trip generation data is based on suburban locations with primarily auto trips. Transit, bicycling, and walking is not generally captured in the trip generation data. For projects that will have alternative modes, transit use, bicycling, and walking may be specifically acknowledged to reduce the trip generation (after the internal capture step) with proper justification and subject to the approval of City staff.

Accounting for alternative modes includes considerations for project proposed (or required) TDM measures. Consultant should propose the alternative modes reduction factor for the project to be reviewed and approved by City staff.

SANDAG trip reduction factors may also be considered for developments within ¼ mile walking distance to a local transit station.

Pass-By & Diverted Trips

Properly estimating the number of pass-by trips is important because even though pass-by trips do not add extra trips to the surrounding roadway system, such trips impact the traffic at the driveways and all the turning movements expected at these driveways. The percentage of pass-by and diverted link trips

should be estimated based on data provided by ITE or actual surveys of similar land uses. The pass-by reduction should not exceed 10% of the adjacent street volume.

Typically, pass-by trips will not be added to the study intersections (except for accounting for them at project driveways). Typically, diverted link trips are added to all study intersections along with the net new project trips, unless there is specific justification to demonstrate where the trips are diverting from.

Credit for Existing Uses

For redevelopment projects, it may be appropriate to apply a "trip credit" to account for vehicle trips being generated by an existing use that will be redeveloped. Traffic counts should be performed to determine the appropriate trip credit. The "trip credit" should be applied after internal capture and alternative modes are accounted for. The existing use should be operating at the time of data collection or be in operation within the last six months prior to submitting discretionary permits as demonstrated to the satisfaction of the City Engineer.

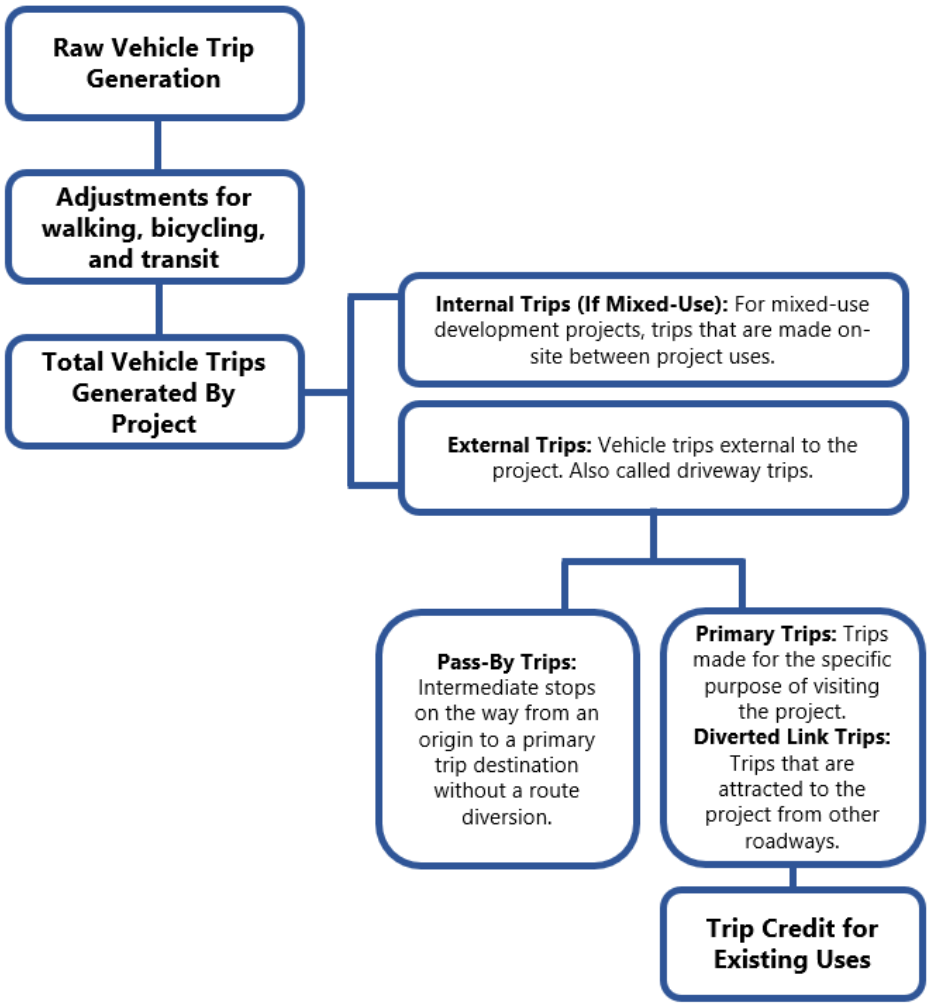
Truck Traffic

For projects that anticipate the generation of significant truck traffic (typically a project that that estimates that truck traffic will account for 25% or more of the total project trip generation), all truck trips should be converted to passenger car equivalents ("PCE") for the capacity analysis. Typically, the PCE factor that should be applied is 2.5 passenger cars for each truck trip.

Other Jurisdictions

Caltrans or adjacent jurisdictions may use different trip reduction rates. Early consultation with reviewing agencies is strongly recommended.

Figure 1: Trip Generation Calculation Process



Trip Distribution

The following describes the procedure for assigning project trips to the roadway network. Trip distribution can be determined from zip code data, census data, market research, travel demand models, existing travel patterns, or the locations of complementary land uses. Trip distribution assumptions should be consistent for developments of the same use in the same areas. Trip distribution for the City of Escondido can be estimated using two methods:

- Manual estimation using existing traffic volumes, location of complementary land uses, and engineering judgement. The trip distribution should be clearly communicated on a map that shows the percent of project traffic on each roadway in the vicinity of the project site. Manual estimation is generally appropriate for projects that generate fewer than 2,400 daily trips.

- Use the current version of the SANDAG Regional Travel Demand Model to perform a select zone analysis. The SANDAG Regional Travel Demand Model should generally be used to determine the trip distribution for projects that generate 2,400 or greater daily trips.

3. CEQA Requirements for Transportation VMT

3.1 Overview

SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change is being made by replacing LOS with VMT and providing streamlined review of land use and transportation projects that will help reduce future VMT growth. This shift in transportation impact focus is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation.

In January 2019, the Natural Resources Agency finalized updates to the CEQA Guidelines including the incorporation of SB 743 modifications. The 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, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant CEQA transportation impacts. The OPR guidance recommends the use of VMT as the preferred CEQA transportation metric. To comply with the new legislation, the City of Escondido has identified VMT analysis methodology, establishment of VMT thresholds for CEQA transportation impacts, and identification of possible 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 GHG emissions.

VMT is a metric that accounts for the number of vehicle trips generated and the length or distance of those trips. 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 (e.g., VMT/capita). VMT tends to increase as land use density decreases and travel becomes more reliant on the use of the automobile 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, 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.

3.2 Metrics and Methodology for Calculating VMT

In general, transportation VMT analysis for CEQA should be conducted using the SANDAG Regional Travel Demand Model. The model outputs can be used to produce VMT/capita, VMT/employee, and Total VMT.

There may be special circumstances under which other tools and techniques should be used to perform VMT analysis. There are some unique land uses that are not appropriately modeled using the SANDAG model, such as uses that have the majority of their activity on the weekends (the SANDAG Model produces weekday results). The applicant's consultant should coordinate with City staff if a VMT estimate tool other than the SANDAG Model is proposed for use.

Summary of Metrics by Project Type

The following summarizes the appropriate metric for various types of projects. Detailed definitions of the metrics follow.

- **Residential**: VMT/capita
- **General Employment**: VMT/employee
- **Industrial Employment**: VMT/employee
- **Regional Retail, Regional Recreational, or Regional Public Facilities**: Change in total VMT (using the boundary method)
- **Mixed-Use**: Each project component evaluated per the appropriate metric based on land use type (e.g., residential, employment, and retail)
- **Transportation Project**: Change in total VMT (using the boundary method)
- Unique circumstances may require alternate metrics

VMT per Capita

VMT/capita is established by summing up total daily VMT generated by residents of a geographic area and dividing by the population of that geographic area. Total daily VMT includes all trip tours made by residents: home-based and non-home-based trip tours (i.e., all VMT for a resident for the entire day regardless of trip purpose or origin/destination).

To analyze the VMT/capita for a proposed project, total daily VMT generated by project residents is divided by the project resident population.

SANDAG has a procedure to produce VMT/capita; however, the SANDAG procedure to produce this metric only includes VMT generated within the SANDAG region by residents of the SANDAG region. If a project is expected to produce consistent travel outside of the SANDAG region, the VMT outside of the regional should be included in the analysis. To account for VMT generated by residents of the SANDAG region traveling outside of the region, the SANDAG model data should be appended with the VMT that occurs by SANDAG region residents outside of the region. The steps necessary to include VMT from all trips that enter or exit the SANDAG region are explained in the Trip Length Adjustment in Appendix G.

VMT per Employee

VMT/employee is established by summing the total daily VMT generated by resident employees[1] of a geographic area and dividing by the number of employees of that geographic area. Total daily VMT includes all trip tours made by employees, not just work-related trips (i.e., all VMT for a resident for the entire day regardless of trip purpose or origin/destination). Employees whose work location is specified as home are not included in the calculations. To analyze the VMT/employee for a proposed project, the total daily VMT produced by the project's employees is divided by the total number of employees.

The procedure developed by SANDAG to calculate VMT/employee by TAZ only accounts for VMT generated within the SANDAG region by employees who are also residents of the SANDAG region. Employees that live outside of the region and travel into the SANDAG region for work are not accounted for because of the nature of the calculation.

Total VMT

Total VMT can be calculated by either of two methods – the Boundary Method or the Origin-Destination Method.

Boundary Method

Total daily VMT (Boundary Method) within a given area can be measured by multiplying the daily volume on every roadway segment by the length of every roadway segment within the area. This is called Boundary Method VMT. Examples of Total VMT (Boundary Method) are VMT within the SANDAG region, VMT within a defined planning area, or VMT within the market area to be served by the project.

This metric is used to analyze regional retail, service, recreational, regional public facilities, and transportation infrastructure projects.

Origin-Destination Method

Total daily VMT (Origin-Destination Method) within a given area can be calculated directly from model outputs by multiplying the origin-destination (O-D) trip matrix by the final assignment skims (O-D Method VMT). The total VMT value should be appended to include VMT from all trips that enter or exit the SANDAG region.

This metric is used to evaluate a regional project if that project is expected to draw trips from outside the region (e.g., an amusement park).

Other VMT Metrics

There may be circumstances where other types of VMT metrics may be appropriate, such as projects that draw people from outside of the SANDAG region. One of these is the VMT/service population metric. VMT/service population is established by dividing the total VMT with at least one trip end in a geographic

[1] Resident employees both live and work in the SANDAG region.

area by the population plus employment of that geographic area. The total VMT includes all internal VMT, internal-to-external, and external-to-internal VMT (i.e., all VMT regardless of geographic boundaries). Since this metric combines VMT for residents and employees and reflects how accessible all land uses are (e.g., geographies with higher density, more shopping, and more jobs will have lower VMT/service population) it can be useful to understand a variety of project types. To analyze the VMT/service population for a proposed project, the project's total VMT (using the origin-destination method) is divided by the project population plus employment. Use of an alternate metric, such as VMT/service population, should be used only when standard metrics are not applicable and after coordinating with City staff in advance.

Trip Length Adjustments

Trip length adjustments for trips leaving the SANDAG Model Area can be made by using the California Statewide Travel Demand Model (CSTDM). Information on adjusting trip lengths is provided in Appendix G.

3.3 VMT Analysis for Land Use Projects

Screening Criteria for CEQA VMT Analysis

The requirements to prepare a detailed transportation VMT analysis apply to all land development projects, except those that meet at least one of the screening criteria. 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.

Projects screened out shall still evaluate connectivity to existing sidewalks on adjacent key land uses (e.g., schools for residential projects, transit for employment uses) and propose improvements to address connectivity gaps in a manner proportionate to the project size and demand.

1. Small Residential and Employment Projects

Projects generating 200 or fewer net new daily vehicle trips may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Trips are based on the number of vehicle trips calculated using SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* or ITE trip generation rates with any alternative modes/location-based adjustments applied.

2. Projects Located in a Transit-Accessible Area

Projects located within a half-mile walking distance of an existing major transit stop or an existing stop along a high-quality transit corridor[2] may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Distance to transit should be determined along an ADA-accessible

[2] Major transit stop: 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. High quality transit corridor: a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute periods.

path of travel, not "as the crow flies" measurements. Note that SPRINTER Light Rail stations are considered major transit stops. A map of existing major transit stops and existing stops along high-quality transit corridors is provided in **Appendix B**.

The presumption of a less-than-significant impact near these transit stops may **not** be appropriate if the project:

- Has a Floor Area Ratio of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the City
- Is inconsistent with SANDAG's most recent Sustainable Communities Strategy or the land use growth assumption accommodated by the Land Use Element portion of the General Plan
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units
- Does not have basic walking and biking access to transit (e.g., sidewalks connecting to transit stops)

3. Projects in a VMT-Efficient Area

A VMT-efficient area is any area within the City with an average VMT/capita or VMT/employee below the thresholds as compared to the baseline regional average for the census tract it is located within, as provided on the SANDAG website.[3]

Residential projects located within a VMT-efficient area may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. A VMT-efficient area for residential projects is any area with an average VMT/capita 15% below the baseline regional average for the census tract it is located within.

Employment projects located within a VMT-efficient area may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. A VMT-efficient area for employment projects (excluding industrial employment projects) is any area with an average VMT/employee 15% below the baseline regional average for the census tract it is located within.

[3] The VMT/Capita and VMT/Employee screening maps are created using information from the current version of the SANDAG model at the time a project notice of preparation (NOP) is produced. The current web address is: https://sandag.maps.arcgis.com/apps/webappviewer/index.html?id=5b4af92bc0dd4b7babbce21a7423402a. As SANDAG updates the model to reflect development and planning throughout the region, the screening maps will be updated and may change resulting in development that may have at one time been screened to no longer be screened and vice versa. As the model is updated, earlier versions of the model will also cease to be supported by SANDAG, meaning that model runs can no longer be completed with the previous versions of the model. If a project begins the transportation study process using one version of the model that becomes unsupported during the process, the project can utilize model outputs from the older model version, as long as no additional modeling work will be done. Projects cannot complete their transportation analysis using multiple model versions.

Industrial Employment projects located within a VMT-efficient area may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. A VMT-efficient area for industrial employment projects is any area with an average VMT/employee at or below the baseline regional average for the census tract it is located within.

Mixed-Use projects located within a VMT-efficient area for each of its land uses may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Refer to the appropriate section for each land use included as a part of the mixed-use project to determine the definition of a VMT-efficient area for each land use.

4. Locally-Serving Retail Projects

Local serving retail projects less than 50,000 square feet that are expected to draw at least 75% of customers from the local area (based on a market study and/or qualitative information provided by the applicant) may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.

5. Locally-Serving Public Facilities

Public facilities that serve the surrounding community or public facilities that are passive use may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. The following are considered locally serving facilities:

- Transit centers
- Public schools
- Libraries
- Post offices
- Park-and-ride lots
- Police and fire facilities
- Parks and trailheads
- Government offices
- Passive public uses, including communication and utility buildings, water sanitation, and waste management
- Other public uses as shown in **Appendix C** or determined by City staff

6. Redevelopment Projects with Lower Total VMT

A redevelopment project may be presumed to have a less-than-significant impact absent substantial evidence to the contrary if the proposed project's total project VMT is less than the existing land use's total VMT and the CEQA action includes closing the existing land use.

For projects that meet one of the screening criteria for CEQA VMT analysis, a detailed VMT analysis is not necessary. The Transportation Impact Analysis must include a technical memorandum to document the screening process and findings, including attaching screening maps, market studies, evaluation of sidewalk gaps and proposed improvements, or other relevant supporting data. Additionally, the Transportation Impact Analysis must include a conclusion that the transportation impact is presumed to be less than significant in accordance with criterion b, Section XVII of *Appendix G* to the CEQA Guidelines.

VMT Thresholds of Significance

Projects that do not meet the above screening criteria must include a detailed evaluation of the VMT produced by the project. The significant thresholds and specific VMT metrics used to measure VMT are described by land use type below.

- **Residential**: 15% below regional average VMT/capita
- **Employment**: 15% below regional average VMT/employee
- **Industrial Employment**: At or below regional average VMT/employee
- **Mixed-Use**: Each project component evaluated per the appropriate metric based on land use type (e.g., residential, employment, and retail)
- **Regional Retail, Regional Recreational, or Regional Public Facilities**: A net increase in total regional VMT using the boundary method

Appendix C provides a list of unique project types and which land use category is appropriate for VMT analysis purposes.

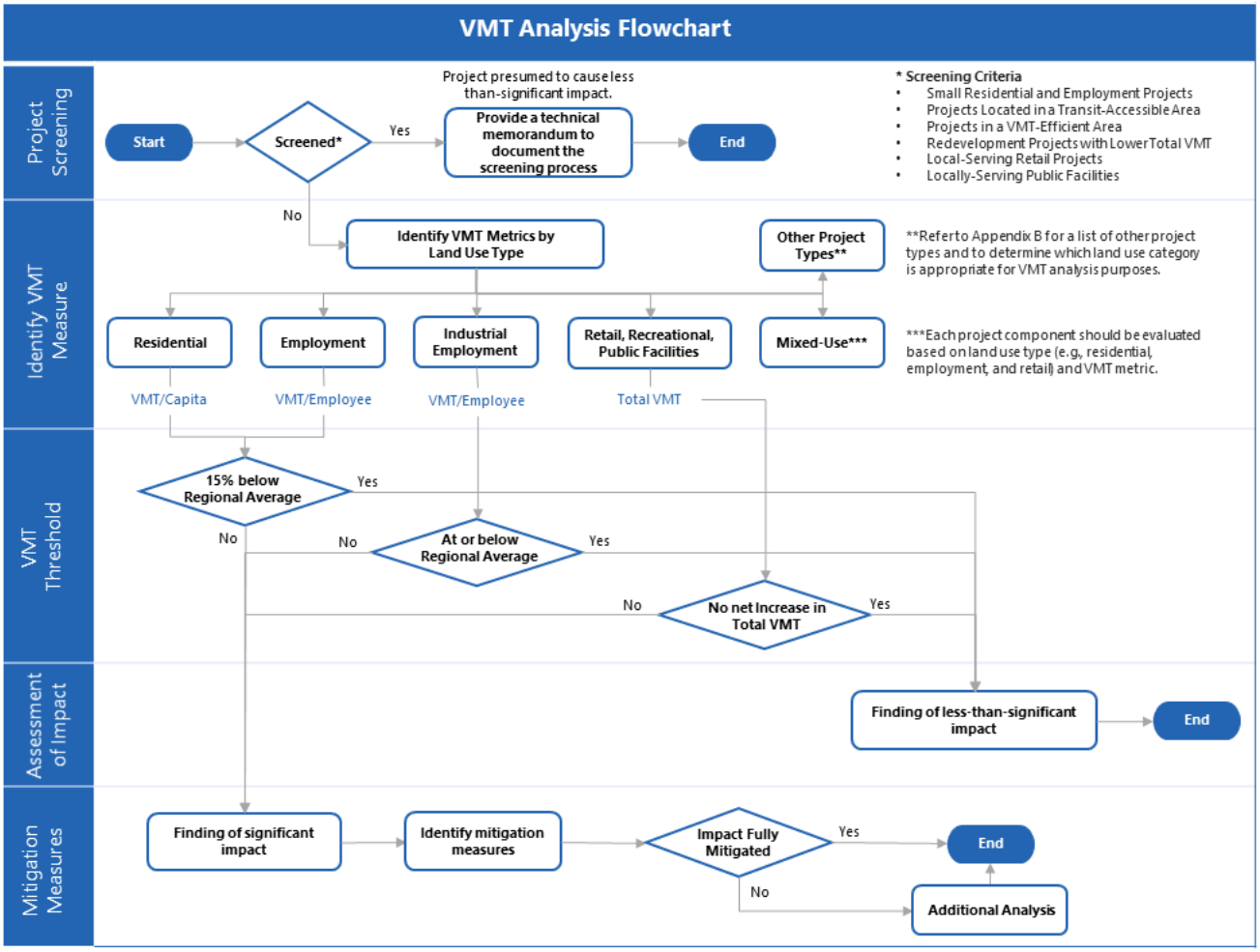
Specific Plans or General Plan Amendments: The land use plan should be compared to the region overall. Comparison to the region is appropriate because large land use plans can have an effect on regional VMT (akin to how a regional retail project affects regional VMT). The significance thresholds described above apply to specific plans or General Plan Amendments. In addition, plan buildout/cumulative analysis is needed.

Additional information regarding the significance thresholds presented here is provided in **Appendix D**.

VMT Analysis Procedures

For projects that are not screened and must provide a detailed evaluation of the VMT produced by the project, guidance is provided below on how to conduct transportation VMT analysis by project type. In addition, **Figure 2** displays the VMT analysis process.

Figure 2: VMT Analysis Process



Note that there may be unique circumstances that require use of tools/techniques other than the SANDAG Regional Travel Demand Model. Use of a tool other than the SANDAG Model should be discussed and documented with City staff in advance.

Residential Projects

For projects that generate fewer than 2,400 daily unadjusted driveway trips: Identify the location of the project on SANDAG's VMT/capita map. The project's VMT/capita will be considered the same as the VMT/capita of the census tract it is located in. Compare the project's VMT/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/capita.

For projects that generate 2,400 or greater daily unadjusted driveway trips: Input the project into the SANDAG Regional Travel Demand Model for SANDAG to provide the project's VMT/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 calculate the VMT/capita metric. Note that there may be some circumstances where use of the screening maps or other sketch modeling tools are appropriate for larger projects.

Employment Projects

For projects that generate fewer than 2,400 daily unadjusted driveway trips: Identify the location of the project on SANDAG's VMT/employee map. The project's VMT/Employee will be considered the same as the VMT/Employee of the census tract it is located in. Alternatively, the project's VMT can be determined by inputting the project into the SANDAG Regional Travel Demand Model in the manner previously described. Compare the project's VMT/Employee to the threshold to determine if the impact is significant.

For projects that generate 2,400 or greater daily unadjusted driveway trips: Input the project into the SANDAG Regional Travel Demand Model to determine the project's VMT/Employee. To perform the analysis, all project land uses should be inputted, and the VMT/Employee should be determined using the same method/scripts that SANDAG utilizes to develop the VMT/Employee metric. Note that there may be some circumstances where use of the screening maps or other sketch modeling tools are appropriate for larger projects.

Retail Projects

Calculate the change to area VMT using the SANDAG Travel Demand Model (or other appropriate sketch model as coordinated with City Staff). To calculate the change in area 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" area VMT produced by the model run is compared to the "no project" area VMT.

Mixed-Use Projects

Evaluate each individual project component per the appropriate metric based on land use type (e.g., residential, employment, and retail) as described above.

Other Projects

Input the project into the SANDAG Regional Travel Demand Model for SANDAG to provide the project's applicable VMT metric. To perform the analysis, all project land uses should be inputted, and the VMT metric that is appropriate based on the land use type should be determined using the methodology described in **Section 3.2**.

VMT Reductions

If the project includes transportation demand management (TDM) measures, the reduction in VMT due to each measure shall be calculated and can be applied to the project analysis. See **Section 3.5** for resources for determining the reduction in VMT due to TDM measures.

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

The resulting VMT values should be compared to the appropriate threshold (described previously under **VMT Thresholds of Significance**) to determine whether the project results in a significant CEQA transportation impact due to VMT.

3.4 VMT Analysis for Transportation Projects

Projects that result in an increase in additional motor vehicle capacity (such as constructing a new roadway or adding more vehicle travel lanes to an existing roadway) has the potential to increase vehicle travel, referred to as "induced vehicle travel."

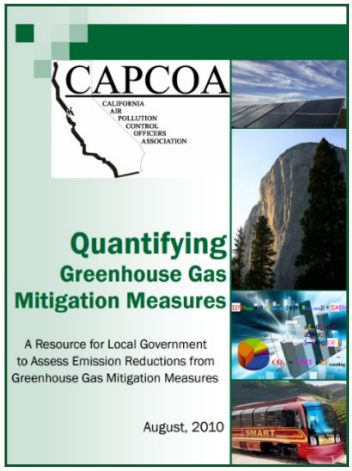
Appendix E contains a list of transportation projects that, absent substantial evidence to the contrary, do not require an induced travel/VMT analysis since they typically do not cause substantial or measurable increases in VMT.

For all other projects, a VMT analysis must be done. To calculate the change in area VMT (boundary method), the project should be inputted into the travel demand model. The "with project" area VMT produced by the model run is compared to the "no project" area VMT. A net increase in area VMT indicates that the project has a significant impact.

3.5 VMT Reduction and Mitigation Measures

To mitigate VMT impacts, the project applicant must reduce VMT, which can be done by either reducing the number of automobile trips generated by the project or by reducing the distance that people drive. The following strategies are available to achieve this:

1. Modify the project's built environment characteristics to reduce VMT generated by the project.
2. Implement TDM measures to reduce VMT generated by the project.



CAPCOA Quantification Report, which includes quantification of VMT reducing measures.

SANDAG Mobility Management Guidebook, which includes recommendations of VMT-reducing measures.

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

- CAPCOA Quantification Report
- SANDAG *Mobility Management Guidebook*/VMT Reduction Calculator Tool

Both resources above include equations that address the diminishing value or decreased effectiveness of TDM measures when those measures are used in combination. The equation below should be used by applicants to accurately quantify the effectiveness of a proposed TDM program.

$$\text{Total VMT Reduction} = (1 - P_a) * (1 - P_b) * (1 - P_c) * \ldots$$

where:

P_x = percent reduction of each VMT reduction strategy

Additionally, applicants should be aware of limits to overall program effectiveness (i.e., VMT reduction) that may be achieved from TDM strategies dependent on the project's land use context. Projects that are in urban areas have a higher limit of effectiveness (i.e., they can result in higher VMT reductions) than those in suburban areas. The formula defines the particular conditions that lead to different ways that the TDM measure may be applied or how a TDM measure might be applied in different circumstances. That is, to proposed effective and appropriate TDM measures is based on the project's size, location, and land uses for varying levels of implementation.

Special attention should be given to ensuring that measures are not double-counted through the transportation analysis process. For example, if a project identifies telecommuting as a reduction strategy, care should be taken to identify the level of telecommuting that has already been assumed as part of the travel demand model through coordination with SANDAG modeling staff or review of SANDAG model documentation available on SANDAG's website.

An example VMT reduction calculation is provided below showing quantified TDM measures for a sample mixed-use development project is provided in **Appendix H**. The City of Escondido is currently evaluating VMT Mitigation Strategies that could include, among other things, a VMT Exchange Program or VMT Mitigation Bank. Until such a program is adopted, applicants should reach out to City staff to identify candidate VMT mitigation projects within the City of Escondido that can be analyzed to mitigate VMT impacts. Pursuant to the City's Climate Action Plan, mitigation is required to be local.

3.6 Cumulative VMT Impacts

Since VMT is a composite metric that will continue to be generated over time, a key consideration for cumulative scenarios is whether the rate of VMT generation gets better or worse in the long term. If the rate is trending down over time consistent with expectations for air pollutant and GHGs, then the project level analysis may suffice. However, the trend direction must be supported with substantial evidence. A project would result in a significant project-generated VMT impact under cumulative conditions if the applicable cumulative project-generated VMT thresholds are exceeded.

Measuring the project's effect on VMT is necessary especially under cumulative conditions to fully explain the project's impact. A project effect on VMT under cumulative conditions would be considered significant if the cumulative link-level boundary VMT/capita or VMT/employee for the San Diego region increases under the "plus project" condition compared to the "no project" condition.

Please note that the cumulative "no project" condition shall reflect the adopted Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS); as such, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant.

4. Local Mobility Analysis

4.1 Overview

The authority for requiring non-CEQA transportation analysis and potentially requiring project improvement conditions to address identified deficiencies lies in the City's project review authority and General Plan policies to promote orderly development, promote public safety, and ensure land development site planning and needed infrastructure are adequate.

The LMA evaluates the effects of a proposed development project on traffic operations and safety for the roadway network in the proximate area of the project. The LMA will:

- Specify the City's screening criteria, study area, and methodologies to assess the potential need for off-site operation improvements to the project study area transportation network.
- Ensure that the local transportation facilities will have sufficient capacity to accommodate the project's demand on various modes of travel, and that improvements identified by the City are constructed when needed, consistent with the City's adopted standards and policies.
- Ensure consistency with transportation planning documents (such as bicycle and pedestrian planning efforts).
- Establish measures of effectiveness to maintain vehicular LOS consistent with the City's General Plan Mobility and Infrastructure Element, as may be amended from time to time.
- Facilitate site project access and roadway frontage infrastructure improvements to serve the project vicinity.

Detailed information on the analysis methodologies, standards, and thresholds are discussed in the following sections. As discussed previously and in **Section 2.3**, all projects will be required to coordinate with City staff prior to project initiation to ensure an efficient review process.

4.2 Requirements

The required study scenarios and scope will vary depending on the total number of daily trips the project is anticipated to generate. Both the analysis scenarios and the facilities that need to be analyzed are to be confirmed with City staff (see **Sections 1.5 and 2.2**) prior to conducting an LMA through the scoping process.

The LMA should use the current state-of-the-practice analysis methodologies to analyze traffic conditions. General requirements for analysis in the LMA are outlined below:

Vehicle

The City's General Plan (2012) establishes a goal of LOS C for all City streets; however, due to overall citywide traffic conditions, LOS D was considered acceptable. If the existing LOS is D or worse, preservation of the existing LOS must be maintained, or acceptable mitigation must be identified.

Currently the approved level of service standards for different street segments based on their classifications and average daily vehicle trips (ADT) within the City of Escondido are provided in **Table 1**.

Table 1: City of Escondido Level of Service Standards:
Street Segments Average Daily Vehicle Trip Thresholds

Street Classification	Lanes	Cross Sections	Level of Service				
			A	B	C	D	E
Prime Arterial	(8 lanes)	116/136 (NP)	23,800	37,800	51,800	62,300	70,000
	(6 lanes)	106/126 (NP)	20,400	32,400	44,400	53,400	60,000
Major Road	(6 lanes)	90/110 (NP)	17,000	27,000	37,000	44,500	50,000
	(4 lanes)	82/102 (NP)	12,600	20,000	27,400	32,900	37,000
Collector	(4 lanes)	64/84 (NP)	11,600	18,500	25,300	30,400	34,200
	(4 lanes)	(WP)	6,800	10,800	14,800	17,800	20,000
Local Collector	(2 lanes)	42/66 (NP)	5,100	8,100	11,100	13,400	15,000
		(WP)	3,400	5,400	7,400	8900	10,000

Source: City of Escondido former Traffic Impact Analysis Guidelines.
Notes:
NP: No Parking, WP: With Parking
The following V/C Ratios were utilized for determining Existing and Future Level of Service (rounded to the nearest hundredth).

Level of Service	(V/C Ratio)
A - Less than or Equal to	0.00 to 0.34
B - Less than or Equal to	0.35 to 0.54
C - Less than or Equal to	0.55 to 0.74
D - Less than or Equal to	0.75 to 0.89
E - Less than or Equal to	0.90 to 1.00

Trip generation should be determined following the guidelines outlined in **Section 2.2**. Based on the adopted 2013 General Plan with a goal of LOS C, an LMA must be prepared for any project that generates and adds more than 2% of the ADT to any street segments operating at LOS C or worse within the preliminary study area identified by the City staff. Based on this threshold, **Table 2** contains the trigger-points for a required LMA within the City of Escondido for each street classification.

Table 2: ADT Thresholds for Roadway Segments to Trigger Local Mobility Analysis for New Development

Street Classification	Lanes	Cross Sections (ft.)	LMA Trigger-Points (ADT generation)
Prime Arterial	(8 lanes)	116/136 (NP)	900
	(6 lanes)	106/126 (NP)	800
Major Road	(6 lanes)	90/110 (NP)	700
	(4 lanes)	82/102 (NP)	500
Collector	(4 lanes)	64/84 (NP)	500
	(4 lanes)	(WP)	250
Local Collector and other	(2 lanes)	42/66 (NP)	200
	(2 lanes)	(WP)	200

Source: City of Escondido former Traffic Impact Analysis Guidelines.
Notes:
2% of ADT for LOS C has been used as a guide to calculate the trigger point values
NP: No Parking, WP: With Parking

An LMA should be undertaken for any type of development that generates daily trips more than the above-mentioned trigger points. Certain types of projects that generate fewer than 500 ADTs may be considered by the City staff for an LMA waiver only where the affected segments and intersections operate at LOS C or better. On the contrary, City staff may require an LMA for any kind of development if the possible traffic effect of the project is believed to be considerable. At a minimum, the study area should include at least all site access points and major intersections (signalized and un-signalized) adjacent to the site in the study area. **Table 3** provides the peak hour trip thresholds for determining if an intersection should be included in the LMA. The thresholds represent the sum of all trips (inbound and outbound) added to any leg of the intersection.

Table 3: ADT Thresholds for Intersections to be included in the LMA

Intersection Classification	LMA Trigger Points (AM or PM peak hour trips added to any leg)
Prime Arterial	50
Major Road	40
Collector	30
Local Collector	20

Source: City of Escondido former Traffic Impact Analysis Guidelines.
Notes:
Study area can be expanded by City Engineer

At isolated intersections that are not heavily congested, deterministic methods that apply HCM equations for each intersection in isolation can be used. The current version of the Highway Capacity Manual reflects current state-of-the-practice methodology. There are several software packages that use deterministic methods such as Synchro, Vistro (previously Traffix), and Highway Capacity Software. The HCM methodology assigns a LOS grade to an intersection based on estimated delay.

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.

Signalized intersections, all-way-stop intersections, and roundabouts should have the entire intersection average vehicle delay reported. Minor side-street stop intersections should have the worst-case movement average vehicle delay reported.

It is recommended that the methodology and software proposed for use is coordinated with City staff. City staff may also request the consultant provide micro-simulation electronic files for review.

Active Transportation

Pedestrian: The pedestrian analysis should document existing and planned pedestrian facilities and any substandard or missing facilities (e.g., missing sidewalk, curb ramps, major obstructions) within a ¼-mile walking distance measured from each pedestrian access point (e.g., driveways, on-site sidewalk connections to the street). Planned facilities should be determined based on relevant planning documents (e.g., General Plan, other City planning documents).

Bicycle: The bicycle analysis should document existing and planned bicycle facilities and any substandard or missing facilities (e.g., bike lane gaps, obstructions) within a one-mile bicycling distance measured from the centroid point of the parcel's linear frontage or from the center of the intersection formed by each project driveway. Planned facilities should be determined based on relevant planning documents (e.g., General Plan, Bicycle Master Plan).

Transit: The transit analysis should focus on transit amenities and connectivity to transit, especially for projects where the entire project site within a half-mile walkshed from the centroid point of the parcel's linear frontage to a major transit stop or a high-quality transit corridor [4]. The analysis should identify the closest transit routes and stops to the project within ¼-mile walking distance and documentation of amenities at existing transit stops (e.g., shelters, maps, benches). Evaluation of transit amenities should be completed considering the requirements in the latest North County Transit District (NCTD) Bus Stop Development Handbook and improved where demand of the project warrants such improvement. A sample of the amenity requirements is provided in **Appendix F**. Project applicants should always

[4] Major transit stop: 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. High quality transit corridor: a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute periods.

coordinate with City and NCTD staff to determine appropriate transit amenities and applicable guidelines. The analysis should include discussion on the quality of the nearby transit facilities, including frequency of service, connections to hubs, etc.

Site Access and Circulation

The LMA should address the following site-specific topics, where applicable:

- Appropriate access management standards for median openings and spacing between major driveway connections
- Potential sight distance problems
- Potential pedestrian or bicycle conflicts
- Relationship of internal circulation facilities to public streets
- Sufficiency of driveway length at major entrances
- On-site circulation as it impacts the public roadway system or access to public transportation and bicycle/pedestrian network
- Potential for shared access among developments, including alternate access roads.

Data Collection and Study Periods

- Traffic counts should be collected for each of the study locations and should be no more than two years old unless older counts are demonstrated to be still valid for Existing Conditions. Counts older than four years old must be updated. Coordination with City staff is required to determine appropriate use of any historic data.
- The LMA should provide tables and map figures of the traffic count data. Technical Appendices should include original traffic count data sheets.
- Traffic counts should typically be conducted during a.m. and p.m. peak periods on weekdays (Tuesdays, Wednesdays, or Thursdays), unless approved by City staff. For typical commute hours, the peak hours will fall between 7 and 9 a.m. and between 4 and 6 p.m.
- Other peak hours, off-peak, or special event peak periods, may also be required depending on the project location and type of use. Projects involving or located near schools may need to evaluate traffic during the associated school hours of operation (e.g., morning drop-off and afternoon dismissal times). If the study necessitates a weekend analysis, Saturday from 11 a.m. to 1 p.m. will be the analyzed peak period. The need for analysis during non-typical commute times should be established with City staff during the scoping process.
- Traffic data should not be collected on weeks that include a holiday and non-school session time periods, unless approved by City staff.

Other Data Collection Considerations

Other considerations in data collection documentation and analysis should incorporate all applicable components that relate to the transportation network, which may include:

- Speed limits and average/85th percentile vehicle speed
- Parking characteristics (on-street parking presence and type, bus stops)
- Signing (static, dynamic, or variable) and pavement markings
- School zone
- Signal phasing and timing plans
- Intersection control type
- Right turn and left turn treatments
- Railroad crossing location
- Ramp metering
- Pedestrian counts
- Bicycle counts
- Transit stops (type, frequency/schedule, dwell time, trip length, bus blockage)
- Roadway classification (functional class, rural/urban designation, access class, area type)
- Cross section elements (number, width and purpose of lanes, shoulder type and width, median type and width, pavement type and rating condition, cross slope, sidewalk, bicycle lane)
- Geometry (horizontal and vertical alignment, storage lengths, intersection/interchange configurations, auxiliary lanes)
- Pedestrian and bicycle accommodation
- Transit (location, position, proportions with shelters and benches)
- Roadside (clear zone width, lateral clearance, driveway counts)

Study Scenarios

The following scenarios should be evaluated for the LMA:

- Existing Conditions
- Existing Plus Project Conditions
- Near Term Conditions (includes near term planned and approved projects)
- Near Term Plus Project Conditions
- Long Term (future year) Conditions (if the project is not consistent with the GP)
- Long Term (future year) Plus Project Conditions (if the project is not consistent with the GP)
- Special Scenarios (e.g., a phased project analysis)

Trip generation and distribution should be determined following the guidelines outlined in **Section 2.2**.

4.3 Identifying Transportation Improvements

In general, a project should consider feasible improvements to accommodate the addition of the proposed project's vehicular, pedestrian, and bicycle traffic, and both the transit access and increased demand for transit services and facilities.

The following sections provide guidance for identifying when a transportation improvement is necessary by facility type:

Vehicle

The following thresholds shall be used to identify if a project is responsible to make transportation operational improvements. If at any time the project causes the values in **Table 4** below to be exceeded on a roadway segment or at an intersection that is operating at a LOS D or worse, the project shall identify improvements to achieve the desired LOS/delay. Below are the proposed thresholds for determining when improvements are needed to a roadway segment or an intersection. The Downtown Specific Plan identifies select roadway segment locations where LOS E is considered acceptable if adjacent intersection operations are LOS D or better. Coordination with City staff for projects within the Downtown Specific Plan is required.

Table 4: Level of Service Thresholds

Level of Service with Project	Allowable Change due to Project		
	Roadway Segments		Intersections
	V/C	Speed Reduction (mph)	Delay (sec/veh)
D, E, or F	0.02	1	2

Notes:
The Downtown Specific Plan identifies select roadway segments where LOS E is acceptable if adjacent intersection operations are LOS D or better.
Transportation improvements should be considered for any segment or intersection operating on LOS F.
V/C: Volume-to-capacity ratio. The roadway capacity is the LOS E threshold as defined in Table 1.

Where existing segments or intersections operate at LOS F, projects should consider measures to reduce any impact or make improvements to a failing facility.

Active Transportation

Pedestrian: The project should construct sidewalks to close sidewalk gaps adjacent to the project site.

The project should remove sidewalk obstructions that limit the pedestrian accessible route to less than four feet in width adjacent to the project site.

The project should construct curb ramps and meet ADA accessibility standards for any intersections adjacent to the project site.

Consideration should be made for traffic calming and pedestrian-related signal timing changes (e.g., leading pedestrian interval signal timing, pedestrian signal head upgrades, installation of accessible signal features) to accommodate an increase in pedestrian demand on roadways and intersections adjacent to the project site.

Bicycle: The project should construct (or preserve space for) any planned bicycle facility pursuant to the City's Bicycle Master Plan, other planning documents, and City design standards.

The project may consider upgrading adjacent bicycle facilities by adding upgraded treatments (e.g., adding buffers or protected bike lanes, where appropriate) to accommodate an increase in bicycle demand.

The project should construct any planned bicycle facilities adjacent to the project frontage to be consistent with the City's Mobility and Infrastructure Element, the Bicycle Master Plan, and other applicable City documents, and through coordination with the City. (This might not be appropriate for short segments.)

Appendix A: Scoping Agreement Form

Scoping Agreement for Transportation Studies

PART 1

General Project Information and Description

Project Information

Project Name:
Project Location:

Project Description

Land Uses and Intensities:
Gross and Developable Acreage:
Building Square Footage or Number of Dwelling Units:
Vehicle Parking Spaces:
Bicycle Parking Spaces:
Motorcycle Spaces:
Electric Vehicle Spaces:

Project Applicant:

Name:
Address:
Telephone and Email:

Consultant

Firm:
Project Manager:
Address:
Telephone and Email:

Project Trip Generation

Source:	**Pass-by Trips:**
Total Daily Trips*:	**Diverted Trips:**
Internal Capture Rate:	**Trip Credit:**
Alternative Modes:	**Net New Daily Trips:**

*If truck traffic accounts for 25% or more of project trips, then a Passenger Car Equivalent (PCE) factor of 2.5 should be applied to all truck trips.

General Plan Consistency

Is this project consistent with the General Plan? ☐ **Yes** ☐ **No**

Site Plan

Attach 11x17 copies of the project location/vicinity map and site plan containing the following:
• Driveway locations and access type
• Pedestrian access, bicycle access, and on-site pedestrian circulation
• Location and distance to nearest existing transit stop (measure as walking distance to project entrance or middle of parcel)
• Location of planned or proposed pedestrian or bicycle improvements within ¼ mile of the project identified in the General Plan Mobility and Infrastructure Element or the Bicycle Master Plan

CEQA Transportation Analysis Screening

Project Type Screening Criteria for CEQA Vehicle Miles Travelled (VMT) Analysis

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 VMT Analysis; If a project is screened out, a technical memorandum is still required to document the screening process)*	Screened Out Yes	Not Screened Out No
☐ **1. Small Residential and Employment Projects:**		
a. Does the project result in 200 daily trips or less?	☐	☐
☐ **2. Project is Located in a Transit-Accessible Area:**		
a. Is the project located within a half-mile walking distance of an existing major transit stop or an existing stop along a high-quality transit corridor?	☐	☐
b. Additional project features:		
i. Does the project have a Floor Area Ratio ≥ 0.75?	☐	☐
ii. Does project include the least amount of parking required for residents, customers, or employees (i.e. not more than required)?	☐	☐
iii. Is the project consistent with SANDAG's most recent Sustainable Communities Strategy or the City of Escondido General Plan?	☐	☐
iv. Does the project replace affordable residential units with a greater number of moderate- or high-income residential units?	☐	☐
v. Does the project have basic walking and biking access to transit (e.g., sidewalks connecting to transit stops)?	☐	☐
☐ **3. Project is in a VMT-Efficient Area:**		
a. Is the project in a VMT/Capita or VMT/Employee Efficient Area per SANDAG screening maps?	☐	☐
☐ **4. Locally-Serving Retail Project:**		
a. Is the project less than 50,000 square feet and expected to draw at least 75% of customers from the local area?	☐	☐
☐ **5. Locally Serving Public Facility:**		
a. Is the project a locally serving public facility?	☐	☐
☐ **6. Redevelopment Project:**		
a. Does the project result in a net decrease in total Project VMT than the existing use?	☐	☐

Non-CEQA Local Mobility Analysis

Local Mobility Analysis (LMA) Requirement

1) Select the Street Classifications for each street in the study area 2) Answer the questions for each Street Classification that applies to your project	Yes	No
☐ **1. Prime Arterial:**		
a. Does the project add 900 ADT or more to any segment classified as 8-lane Prime Arterial?	☐	☐
b. Does the project add 800 ADT or more to any segment classified as 6-lane Prime Arterial?	☐	☐
☐ **2. Major Road:**		
a. Does the project add 700 ADT or more to any segment classified as 6-lane Major Road?	☐	☐
b. Does the project add 500 ADT or more to any segment classified as 4-lane Major Road?	☐	☐
☐ **3. Collector:**		
a. Does the project add 500 ADT or more to any segment classified as 4-lane Collector without parking?	☐	☐
b. Does the project add 250 ADT or more to any segment classified as 4-lane Collector with parking?	☐	☐
☐ **4. Local Collector and other:**		
a. Does the project add 200 ADT or more to any segment classified as 2-lane Local Collector or any other classifications?	☐	☐

Certain types of projects which generate less than 500 ADT may be considered by the City staff for an LMA waiver only where the affected segments and intersections operate at LOS C or better.
Please briefly explain why your project might be eligible for an LMA waiver.

PART 2

Trip Distribution and Trip Assignment

☐ **Select Zone (Model Series_____)**	Projects that generate greater than 2,400 daily trips
☐ **Manual Estimation**	Projects that generate less than 2,400 daily trips

Provide an exhibit detailing the project's trip distribution and trip assignment.
Provide a table with the project's daily trip assignment for each street segment in the study area.

Study Intersections and Roadway Segments (NOTE: Subject to change based of staff review)

1.	**6.**
2.	**7.**
3.	**8.**
4.	**9.**
5.	**10.**

Attach a separate page if the number of study locations exceeds 10.

Other Jurisdictions

Is this project located within one mile of another Local Jurisdiction? ☐ **Yes** ☐ **No**

If yes, name of Jurisdiction:

Specific Issues to be addressed within the Study

(in addition to requirements described in the Guidelines – to be filled out by City Staff)

1.
2.
3.
4.
5.

Recommended by:

Consultant's Representative _____ Date _____

Scoping Agreement Submitted on _____ Date _____

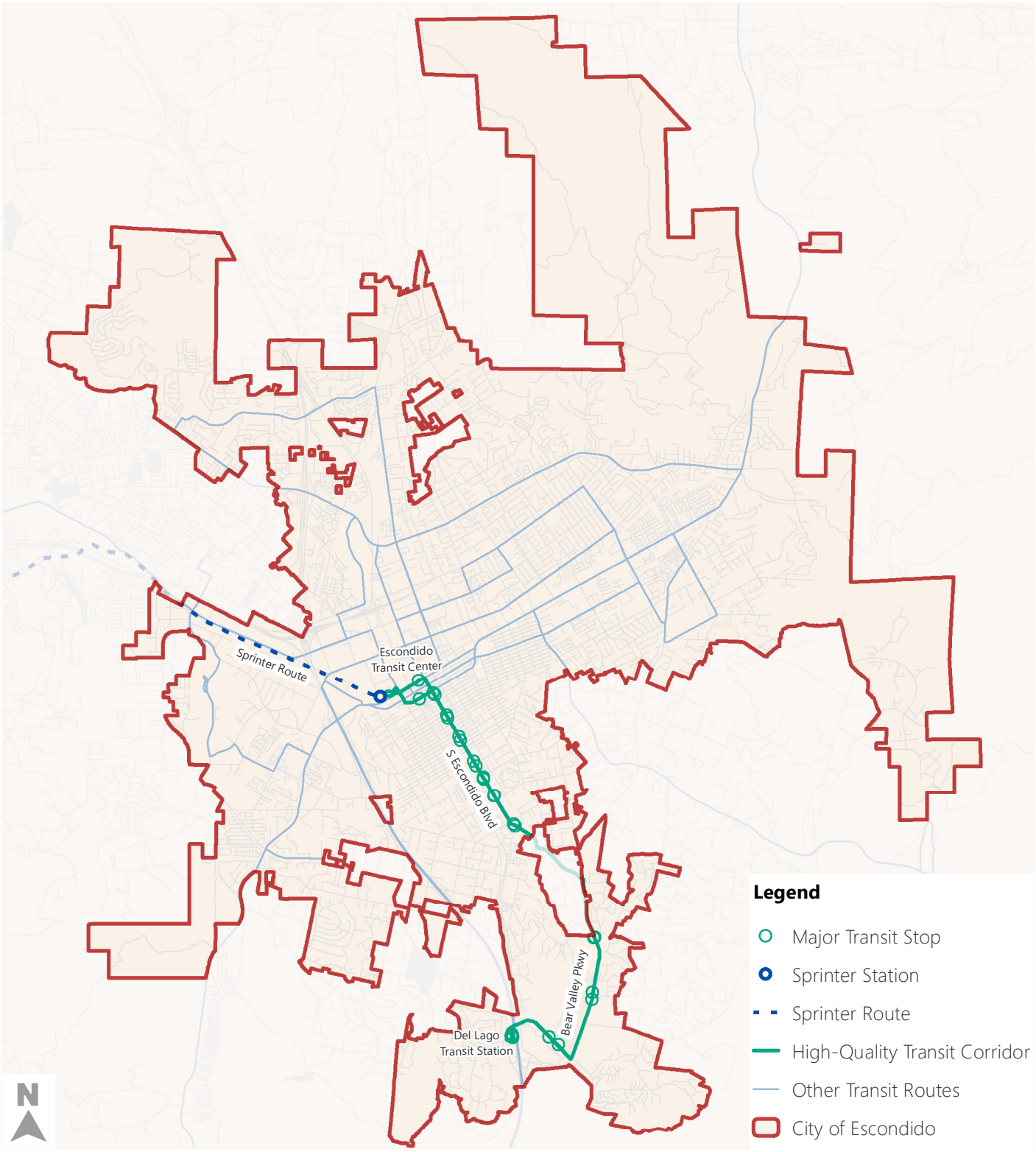
Scoping Agreement Re-submitted on _____ Date _____

Approved Scoping Agreement:

City of Escondido
Transportation Specialist _____ Date _____

Appendix B: Existing Major Transit Stops and Existing High-Quality Transit Corridors

ESCONDIDO
City of Choice



Existing Major Transit Stops and Existing High-Quality Transit Corridors

Appendix C: Land Use Designations

The following table provides a list of unique project types and the land use type they should be considered under for SB 743 screening and analysis.

Land Use Categories

Land Use Category for SB 743 Analysis for all Project Types	
1. Residential Projects	
• Estate, Urban, or Rural • Single Family Detached • Condominium • Apartment • Transitional Housing	• Military Housing (off-base, multi-family) • Mobile Home • Retirement Community • Congregate/Recuperative Care Facility
2. Employment Projects	
• Agriculture • Hospital: General • Hospital: Convalescent/Nursing • Industrial/Business Park (commercial included) • Science Research & Development • Hotel (with convention facilities/restaurant) • Motel • Resort Hotel • Business Hotel	• Military • Standard Commercial Office • Large (High-Rise) Commercial Office • Office Park • Single Tenant Office • Corporate Headquarters (without commercial) • Government Offices (Use is primarily office with employees; no substantial in-person service) • Medical/Dental
3. Industrial Employment Projects	
• Industrial Park (no commercial) • Industrial Plant (multiple shifts) • Manufacturing/Assembly	• Warehousing • Storage
4. Regional Retail Projects (includes Recreational Uses): Not Locally-Serving	
• Super Regional Shopping Center • Regional Shopping Center • Community Shopping Center	• Parks: Amusement • Golf Course (includes driving ranges)

Land Use Categories

Land Use Category for SB 743 Analysis for all Project Types	
5. Retail Projects (includes Recreational Uses): May qualify for locally-serving based on size/market study	
• Car Wash • Gasoline • Sales (Dealer & Repair) • Auto Repair Center • Auto Parts Sales • Quick Lube • Tire Store • Neighborhood Shopping Center • Commercial Shops • Mixed Use: Commercial (with supermarket)/ Residential: *consider each land use type separately for screening*	• Bowling Center • Multi-purpose (miniature golf, video arcade, batting cage, etc.) • Racquetball/Health Club • Tennis Courts • Sports Facilities (indoor/outdoor) • Theaters (multiplex with matinee) • Restaurant • Financial (Bank or Savings & Loan)
6. Regional Public Facilities: Generally Not Locally-Serving	
• Airport: Commercial • Airport: General Aviation • Airport: Heliports • Cemetery • Regional Church (or Synagogue) • University (4 years) • Junior College (2 years) • High School: Private • Middle/Junior High School: Private	• Elementary School: Private • Parks: Regional (developed) • Parks: State • Bus Depot • Truck Terminal • Beach, Ocean, or Bay • Beach, Lake (fresh water) • Landfill & Recycling Center
7. Locally-Serving Public Facilities	
• High School: Public • Middle/Junior High School: Public • Elementary School: Public • Day Care (Public or Private) • Library • Park: City • Park: Neighborhood/County	• Post Office • Department of Motor Vehicles • Government Offices (Providing primarily in-person customer service) • Transit Station (light rail with parking) • Park & Ride Lots

* Land use designations match the categories in SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*.

Appendix D: Screening Criteria and Threshold Evidence

Screening Criteria and Threshold Evidence

This appendix provides context and justification/rationale for the screening criteria and thresholds for performing transportation VMT CEQA impact 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.

1. Small Residential and Employment Projects

Small projects, which are wholly residential and/or employment projects with independent utility that would generate fewer than 200 net 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 services and facilities are available to allow for maximum planned development, and the project is not located 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 to 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 Escondido, the trip generation for a small project was determined utilizing the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* trip generation rates for Standard Commercial Office following the same OPR Technical Advisory rationale. These rates are listed below.

Trip Generation Rate

Land Use	Quantity	Trip Generation
Standard Commercial Office	1,000 square feet (sf)	20 Trips
Trip Generation for 10,000 sf of Standard Commercial Office		
Standard Commercial Office	10,000 sf	200 Trips

Source: SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region.*

Using SANDAG's trip generation rates for a 10,000-square-foot standard commercial office, the daily trip generation is calculated as 200. This number was used to define a small residential or employment project. Use of SANDAG's trip generation rates is appropriate for determining the small project threshold, since this is the source for trip generation for projects reviewed by the City of Escondido.

2. Projects Located in a Transit-Accessible Area

Projects located within a half mile of an existing major transit stop or an existing stop along a high-quality transit corridor[5] may be presumed to have a less-than-significant impact provided the following:

- Has a Floor Area Ratio of at least 0.75
- Includes no more than the minimum parking for use by residents, customers, or employees of the project as required by the City
- Is consistent with SANDAG's most recent Sustainable Communities Strategy or the City of Escondido General Plan
- Does not replace affordable residential units with a smaller number of moderate- or high-income residential units
- Has basic walking and biking access to transit (e.g., sidewalks connecting to transit stops)

Evidence – Projects located within a half mile of an existing major transit stop or a half mile from stops along high-quality transit corridors can help reduce VMT by increasing capacity for transit-supportive residential and/or employment densities in low VMT areas. The increased density that is associated with projects in a transit-accessible area can increase transit ridership and therefore justify enhanced transit service, which would in turn increase the number of destinations that are accessible by transit and further increase transit ridership and decrease VMT.

Additionally, CEQA Guidelines section 15064.3(b) states, "Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact."

3. Projects in a VMT-Efficient Area

If a residential development is located in an area where VMT/capita is 15% or more below the regional average, or a commercial employment development is located in an area where VMT/employee is 15% or more below the regional average, or an industrial employment development is located in an area where the VMT per employee is at or below the regional average, the project is presumed to result in a less-than-significant CEQA impact.

[5] "Major transit stop" means a site containing an existing rail or bus rapid 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. (See Public Resources Code § 21064.3.) "High-quality transit corridor" means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. (See Public Resources Code § 21155(b).)

The City of Escondido will determine VMT-efficient areas using maps provided on the SANDAG website.[6] As new model versions are released (e.g., ABM 2+), SANDAG will produce VMT screening maps consistent with the final OPR Technical Advisory and Updated CEQA Guidelines (December 2018) for use by its member agencies.

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 uses are desired to be located in less VMT-efficient, higher-VMT areas in the City of Escondido. 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 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 states, "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."

4. Locally-Serving Retail Projects

Locally serving retail projects less than 50,000 square feet that are expected to draw at least 75% of customers from the local area may be presumed to have a less than significant impact absent substantial evidence to the contrary. Locally serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.

[6] The VMT/Capita and VMT/Employee screening maps are created using information from the current version of the SANDAG model at the time a project notice of preparation (NOP) is produced. As SANDAG updates the model to reflect development and planning throughout the region, the screening maps will be updated and may change resulting in development that may have at one time been screened to no longer be screened and vice versa. As the model is updated, earlier versions of the model will also cease to be supported by SANDAG, meaning that model runs can no longer be completed with the previous versions of the model. If a project begins the transportation study process using one version of the model that becomes unsupported during the process, the project can utilize model outputs from the older model version, as long as no additional modeling work will be done. Projects cannot complete their transportation analysis using multiple model versions.

Evidence – The OPR Technical Advisory states, "Because new retail development typically redistributes shopping trips rather than creating new trips,[7] 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.

5. Locally-Serving Public Facilities

Community-purpose facilities 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 locally serving retail, locally serving community-purpose facilities would redistribute trips and would not create new trips.[8] Thus, similar to locally serving retail, trips are generally shortened as longer trips from a regional facility are redistributed to the locally serving public facility.

6. Redevelopment Projects with Lower Total VMT

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/capita (residential) or VMT/employee (office) should be compared to thresholds recommended above. Per capita and per employee VMT are efficiency metrics, and, as such, apply only to the proposed project without regard to the VMT generated by the previously existing land use.

"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).

Thresholds

7 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, Journal of Transport and Land Use, 2013.

8 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, Journal of Transport and Land Use, 2013.

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 average VMT/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."

Employment

Threshold – 15% below regional average VMT/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 Employment

Threshold – At or below regional average VMT/employee

Evidence – The OPR Technical Advisory states, "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." Purely industrial uses are desired to be located in locations that are less dense and not within urban areas, which typically have higher VMT/employee. Industrial land uses are land intensive; therefore, placing industrial land uses in less urban areas characterized by having higher VMT/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 Regional VMT as it recognizes that industrial 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 Recreational, or Regional Public Facilities

Threshold – A net increase in total regional VMT using the boundary method

Evidence – The OPR Technical Advisory states, "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 Escondido will be analyzed consistent with the OPR technical advisory. The City of Escondido has retail uses that attract trips from beyond a neighborhood, which are defined in the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* as "Community Shopping Center," "Regional Shopping Center," and "Super Regional Shopping Center."

The recommendations for regional retail uses can also be applied to regional recreational and regional public facilities since these types of facilities operate in a similar way from a transportation/customer attraction perspective.

Appendix E: Transportation Project Screening

ESCONDIDO
City of Choice

Transportation Project Screening Criteria

The following complete list is provided in the OPR Technical Advisory (December 2018, Pages 20-21) and refined for the City of Escondido for transportation projects that, "would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should not require an induced travel analysis."

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity
- Roadside safety devices or hardware installation, such as median barriers and guardrails
- Roadway shoulder enhancements to provide "breakdown space," dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left-turn lanes, or emergency breakdown lanes that are not utilized as through lanes
- Addition of roadway capacity on local or collector streets, provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Closing gaps in the transportation network in conformance with the Circulation Element of the General Plan where 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
- Traffic signal modifications and new traffic signals where warrants are met by existing levels of traffic and the project improves accessibility for active transportation.

- 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

Appendix F: Summary of Desired Transit Stop Features

Excerpt from North County Transit District's *Bus Stop Development Handbook* (March 2018)

3.0 Bus Stop Guidelines

Obstacles to improving transit infrastructure – lack of sidewalk and bike network, available space for stop infrastructure (including ADA), accessible neighborhood sidewalks connecting to stops, accessible street crossings. Work with city departments to make improvements and encourage continued upgrades to complete the networks, especially during other construction projects.

3.1 Curb-Side Improvements

Passenger comfort, safety, and convenience are all impacted by bus stop features that are located off the street or roadway, commonly referred to as curbside improvements. This section outlines how developers and jurisdictions can appropriately locate bus stops and choose the correct stop type, as well as information on general preferred and recommended curbside improvements.

3.1.1 Bus Stop Types

The design of a bus stop can often impact the amount of ridership at that particular location. A stop must be accessible, safe, and convenient for passengers. NCTD has developed three distinct bus stop types – the basic stop, the bench stop, and the shelter stop – as well as stops associated with transit stations/centers.

BASIC STOPS are characterized by the presence of a bus stop sign only, and do not contain passenger amenities like benches or shelters. These stops are generally utilized in rural areas or those areas with lower density and lower ridership. Basic stops are required to meet ADA design requirements.

BENCH STOPS are basic transit stops with the addition of a bench for waiting passengers and trash receptacles. In some cases, additional amenities such as lighting or bicycle racks may be warranted. Bench stops are best suited for areas with low to medium density and ridership.

	Required Amenities	Recommended Amenities	Optional Amenities
Bench Stops	• Bus stop sign • ADA accessible pad • Bench • Connection to adjacent sidewalks/pathways • Trash receptacle	• Lighting • Bicycle racks/lockers • Transit route information	• Screening from sun / elements (landscaping) • Transit system information

SHELTER STOPS are located in areas with higher ridership and medium to high density developments. In addition to a sign, ADA compliant concrete pad, and bench, these stops include a shelter and trash receptacle, at a minimum. Additional amenities like lighting and bicycle racks are highly encouraged. The design of a shelter stop is dependent upon the existing features of the site, including sidewalk design, right-of-way, and proximity to existing structures.

Appendix G: Trip Length Adjustments

Trip Length Adjustments

Trip length adjustments for trips leaving the SANDAG Model Area can be made by using the California Statewide Travel Demand Model (CSTDM).

Adjusting the length of trips leaving a model boundary requires appending extra distance at the model gateway zone (or external centroid) connectors. This process results in new gateway distances that are weighted based on the amount and location of external travel origins and destinations.

The first step of this process is to determine trip volume leaving or entering the model boundary. These are referred to as internal-to-external (IX) and external-to-internal (XI) trips. This data can be generated either from O-D trip matrices or by conducting a select zone analysis to track trips to the model gateways. The volume at the gateways for this purpose should not include external-to-external (XX) through trips.

Determining the full length of trips leaving or entering a model boundary requires an OD dataset that includes flows between the model area and the area external to the model. The California Statewide Travel Demand Model (CSTDM) should be used to develop the OD dataset.

The next step requires determining the gateway(s) based on the SANDAG model which trips from the OD data source would travel through. The trip length adjustment process ultimately requires calculating the weighted average distance beyond each model gateway. The process of calculating trip lengths external to the SANDAG model region for trips entering or exiting the SANDAG model area using the CSTDM is described below:

- Create correspondence between Study Area TAZs within SANDAG model to the Statewide Model TAZs.
- Add "Gate" attribute to CSTDM roadway network links and set "Gate" equal to gateway id only for those links identified as the locations corresponding to the SANDAG model gateways.
- Add "Gate_Dist" attribute to CSTDM roadway network links and set "Gate_Dist" equal to the link distance for those links outside the SANDAG model boundary. All the CSTDM roadway links inside the SANDAG model boundary will have a "Gate_Dist" attribute of 0.
- Run a highway skim on the CSTDM roadway network to skim the shortest travel time between each OD pair, tracking the gateway and distance outside the SANDAG model boundary.
- For each gateway, summarize the average distance beyond the SANDAG model boundary weighted by volume at each gateway.
- Tag the gateway distance from the above step using CSTDM to the gateways in the SANDAG model and multiply to the gateway volume from the SANDAG model to determine the gateway external VMT to the SANDAG model. Make sure not to double-count any overlap distance that is already accounted for in the VMT calculation from the SANDAG model.

Table G1 shows the base year (2012) weighted average distance beyond the SANDAG model boundary for trips passing through each model gateway, as calculated using the methodology above.

Table G1: Trip Distances Outside San Diego County for Entering and Exiting Trips

Gateway		Distance Outside San Diego County (miles)	
Route	**County**	**IX Trips**	**XI Trips**
I-8	Imperial	70.16	69.20
SR-78	Imperial	54.07	58.90
SR-79	Riverside	71.71	62.54
Pechanga Pkwy	Riverside	35.89	30.91
I-15	Riverside	24.86	24.81
I-5	Orange County	60.54	62.81

Source: Fehr & Peers, California Statewide Travel Demand Model.

Appendix H: VMT Mitigation Sample Calculation

VMT Mitigation Sample Calculation

As shown, each VMT reduction strategy is calculated individually then combined in the equation to determine the overall VMT reduction. The sum of all strategies results in a total of 11.6%; however, the overall VMT reduction is calculated using the multiplicative formula to account for the fact that some strategies are redundant or duplicative in nature.

Land Use Strategies

- **Land Use/Diversity:** 5.0% **P_a = 5.0%**

Travel & Commute Services for Residents

- **Neighborhood/Site Enhancements:** 3.0% **P_b = 3.0%**
  - Pedestrian/Bicyclist Trails Network: 2.0%
  - Electric Bike-Share Program: 0.6%
  - Car-share Program: 0.4%
  - Category % VMT Reduction = 1 – (1 – 2.0%) * (1 – 0.6%) * (1 – 0.4%)= 3.0%
- **Transit System Improvements Strategies:** 1.2% **P_c = 1.2%**
  - Network Expansion (through Local Shuttle Service): 0.9%
  - Service Frequency/Speed Increase (through Local Shuttle Service): 0.3%
  - Category % VMT Reduction = 1 – (1 – 0.9%) * (1 – 0.3%) = 1.2%
- **Commute Trip Reduction (CTR) for residents (home based work):** 2.0% **P_d = 2.0%**
  - Ridesharing Support Features for Residents: 0.6%
  - Transit Fare Subsidy for Residents: 0.9%
  - TDM Program Marketing for Residents: 0.5%
  - Category % VMT Reduction = 1 – (1 – 0.6%) * (1 – 0.9%) * (1-0.5%) = 2.0%

Commute Services for Employees

- **Commute Trip Reduction (CTR) for employees:** 0.4% **P_e = 0.4%**
  - Transit Fare Subsidy for Employees: 0.3%
  - TDM Program Marketing for Employees: 0.1%
  - Category % VMT Reduction = 1 – (1 – 0.3%) * (1-0.1%) = 0.4%

$$\text{Total VMT Reduction} = (1 - P_a) * (1 - P_b) * (1 - P_c) * (1 - P_d) * (1 - P_e)$$

P_x = percent reduction of each VMT reduction strategy

Total VMT Reduction = (1 – 5.0%) ∗ (1 – 3.0%) ∗ (1 – 1.2%) ∗ (1 – 2.0%) ∗ (1 – 0.4%) = **11**