DRAFT Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment

ALL SUBMITTALS AND INQUIRIES PERTAINING TO THIS DOCUMENT MAY BE DIRECTED TO THE CITY OF RIVERSIDE TRAFFIC ENGINEERING DIVISION

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Introduction

CEQA Changes

Since the last significant revision to the City of Riverside TIA Guidelines, SB 743 was signed into law. A key element of this law is the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. This change is intended to assist in balancing the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions.

SB 743 required the Governor's Office of Planning and Research (OPR) to update the CEQA Guidelines and establish criteria for determining the significance of transportation impacts. In December 2018, OPR released their final recommended guidelines based on feedback with the public, public agencies, and various organizations and individuals. OPR recommended Vehicle Miles Traveled (VMT) as the most appropriate measure of project transportation impacts for land use projects and land use plans. SB 743 does not prevent a city or county from continuing to analyze delay or LOS outside of CEQA review for other transportation planning or analysis purposes (i.e., general plans, impact fee programs, corridor studies, congestion mitigation, or ongoing network monitoring); but these metrics may no longer constitute the sole basis for CEQA impacts.

These updated TIA Guidelines have been designed to comply with the new CEQA Guidelines.

Guidelines Organization

The remainder of this guidelines document is organized as follows. We have attempted to organize this memorandum to provide background information, assessment for congestion management/ General Plan Consistency (e.g. LOS analysis), and CEQA assessment (e.g. VMT analysis).

1. Purpose of Transportation Impact Analysis
2. LOS Assessment for General Plan Consistency
3. CEQA Assessment - VMT Analysis
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Purpose of Transportation Impact Analysis

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The need for a TIA may stem from CEQA compliance, general plan consistency, or both. Discretionary actions of public agencies all trigger CEQA review, but whether a TIA is required depends on the findings of the City's initial study and the potential for the project to cause a significant impact. General plan consistency is required for all discretionary actions as well but local agencies have discretion as to how consistency is determined. To aid development review, the City has established an early review process for determining whether a TIA is required and what type of TIA should be prepared with respect to CEQA compliance and general plan consistency.

Need to Complete LOS as part of the TIA Analysis

The following activities generally will not require a TIA that includes Level Of Service (LOS) analysis. This presumption is based on the activities associated with the project (e.g. they are local serving) or the limited trip generation of the project (e.g. projects that generate less than 100 peak hour trips as projects that generate 100 or less trips typically do not affect LOS significantly once distributed to the local roadway network).

- All residential parcel maps
- Single family residential tracts of less than 100 lots
- Apartments and multi-family projects of less than 150 units
- Plot plan and use cases for projects of one acre or less
- Preschools, local serving elementary schools and local serving middle schools
- Local serving churches, lodges, community centers, neighborhood parks and community parks
- Mini storage yards
- Congregate care facilities that contain significant special services, such as medical facilities, dining facilities, recreation facilities and support retail services
- Any use which can demonstrate trip generation of less than 100 vehicle trips in the peak hour.
- Projects with 101-200 peak hour trips in areas where a current comprehensive traffic analysis exists, infrastructure funding mechanisms are in place, or a roadway system is built out in accordance with the 2025 General Plan within a 0.25 mile radius of the project. The Public Works Department may, however, require a local/focused traffic impact analysis study for projects that exhibit potential adverse impacts to Level of Service.
- Projects replacing a vacant use that can demonstrate an equivalent or lesser Trip Generation.

The City reserves the right to require an applicant to prepare additional traffic analysis based on:

- Presence of an existing or potential safety problem
- Location of the development in an environmentally or otherwise sensitive area, or in an area that is likely to generate public controversy
- Presence of a nearby substandard intersection or street
- Need for a focused study for access/operational issues
- Designation of the project as having truck intensive uses. Truck intensive uses include heavy industrial, warehousing or as determined by the Traffic Engineering Division
- Request from an affected agency, such as Caltrans or adjacent City; if the request is deemed reasonable and appropriate

Need to Complete VMT as part of the TIA Analysis

The following activities generally will not require a TIA that includes VMT. This presumption is based on the substantial evidence provided in the OPR Technical Advisory supporting SB 743 implementation or is related to projects that are local serving which, by definition, would decrease the number of trips or the distance those trips travel to access the development (and are VMT-reducing projects).

- Projects located in a Transit Priority Areas (TPA) (as defined later in this guidance)
- Projects located in a low-VMT generating area (as defined later in this guidance)
- Local-serving K-12 schools
- Local parks
- Day care centers
- Local-serving gas stations
- Local-serving banks
- Local-serving hotels (e.g. non-destination hotels)
- Student housing projects
- Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS
- Projects generating less than 110 daily vehicle trips[1]

[1] This threshold ties directly to the OPR technical advisory and notes that CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd.

- This generally corresponds to the following "typical" development potentials:
  - 11 single family housing units
  - 16 multi-family, condominiums, or townhouse housing units
  - 10,000 sq. ft. of office
  - 15,000 sq. ft. of light industrial[2]
  - 63,000 sq. ft. of warehousing[2]
  - 79,000 sq. ft. of high cube transload and short-term storage warehouse[2]

Coordination with the City of Riverside

A TIA "Project Scoping Form", attached, shall be prepared by the Engineer and submitted to the City of Riverside Traffic Engineering Division at PWTraffic@riversideca.gov for approval prior to the preparation of a draft TIA. Appropriate fees as detailed in the Scoping Form will be required at the time of each document's submittal to facilitate review. The Project Scoping Form provides for agreement of the following key points before initiating the TIA:

- Determination of study area, intersections, and roadway links to be analyzed.
- Project trip generation, distribution, and assignment.
- Presentation of screening criteria used to screen the project from VMT assessment or proposed methodology/metrics that will be applied to estimate VMT.
- Use of other approved projects for background traffic, traffic growth assumptions, or integration with RIVTAM or RIVCOM[3] travel demand model.
- Coordination with adjacent agencies.

For projects within one mile of a state highway, or any project that may add traffic on the state highway, the Engineer shall also coordinate with Caltrans.

(e)(2).) Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.

[2] Threshold may be higher depending on the use of the site; however, if an alternate threshold is used it is to be memorialized through a use restriction placed on the site through agreement with the project applicant. This number was estimated using rates from ITE's Trip Generation Manual.

[3] Note – RIVCOM is currently under development with an anticipated completion date in the Spring/Summer of 2020. Once finalized, RIVCOM should be utilized for all forecasting activity.

Level of Service Assessment for General Plan Consistency

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Methodologies

The following LOS analysis is required to meet with general plan consistency requirements.

Intersections

The most recent version of the *Highway Capacity Manual* (Transportation Research Board) should be utilized for both signalized and unsignalized intersections. The following parameters should be included in the analysis.

- Saturation Flow Rate consistent with field measurements *or* 1,900 passenger cars/hour/lane
- Heavy Vehicle Factor based on count data or provided by the City; analyst may use a Passenger Car Equivalent (PCE) conversion to reflect heavy vehicles in the volume *or* incorporate the heavy vehicle factor in the capacity calculation consistent with HCM requirements.
- Project with truck intensive uses must convert project trips to passenger car equivalents **(PCE=2)**. Truck intensive uses include heavy industrial, warehousing or as determined by the Traffic Engineering Division
- Grade based on existing or proposed grade of the facility
- Minimum green time should be based on existing signal timings (timing sheets provided by the City or collected in the field)
- Cycle lengths should be based on existing signal timings or measured in the field
- Lost time should be based on existing signal timings or consistent with the recommendations from the HCM
- Peak hour factors should be based on count data; future peak hour factor should be 0.95
- Intersections must be evaluated with HCM-consistent software; for locations where closely spaced intersections occur or queues build over space and time (extending to upstream or downstream intersections), microsimulation should be utilized to accurately evaluate the intersections as a system. This may require inclusion of freeway facilities.

Signalized Intersection Analysis Input Parameters*

PARAMETER	VALUE
• Exclusive left-turn lanes	peak hour volume >100
• Exclusive right-turn lanes	Peak hour volume > 350
• Dual left-turn lanes	peak hour volume > 200
• Protected left-turn phasing	peak hour volume > 120**
• Minimum green time	7 seconds each movement
• Cycle length	50 sec to 130 sec
• Lost time	Per HCM Exhibit 10-17 (below)

Major street	Minor Street	Number of Phases	L (s)
Protected	Protected	4	16
Protected	Permitted	3	12
Permitted	Permitted	3	12
Permitted	Permitted	2	8

** Contact City Traffic Engineering Division for other warrants

The use of permissive, protected-permissive, or protected-only left turn operations at new or modified traffic signals must be justified using FHWA methodology.

Roadway Segment Assessment

The City may require roadway segment evaluation in addition to intersection analysis; a roadway segment analysis shall be included for all projects inconsistent with the general plan. All roadway segments encompassed by project study intersections shall be included for analysis. Roadway segment capacity shall be based on City of Riverside Roadway Capacities (page 12).

City of Riverside Roadway Capacity (1)

Roadway Classification	Number of Lanes	Two-Way Traffic Volume (ADT)(2)		
		Service Level C	Service Level D	Service Level E
Local	2	2,500-2,799	2,800-3,099	3,100+
Collector (66' or 80')	2	9,900-11,199	11,200-12,499	12,500+
Arterial (3)	2	14,400-16,199	16,200-17,999	18,000+
Arterial (88')	4	16,800-19,399	19,400-21,199	22,000+
Arterial (100')	4	26,200-29,599	29,600-32,999	33,000+
Arterial (120')	6	38,700-44,099	44,100-49,499	49,500+
Arterial (144')	8	50,600-57,799	57,800-64,999	65,000+

Notes: (1) All capacity figures are based on optimum conditions and are intended as guidelines for planning purposes only
(2) Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables
(3) Two-lane roadways designated as future arterials that conform to arterial design standards for vertical and horizontal alignments are analyzed as arterials.

Study Area Boundaries for LOS assessment

In general, the minimum area to be studied should include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets; at which the proposed project will add 50 or more peak hour trips. In general, the study area should not exceed a 5-mile radius from the project site unless evidence is available to justify a larger area. The study area may be extended if the project has a significant impact on the regional transportation system. Additional intersections of concern, which include but are not limited to project driveways may require analysis. For the projects located in the vicinity of schools, counts may be required during the school season as determined by the City. Please note that the City may expand or contract the study area at its discretion.

Analysis Scenarios

The following study scenarios should be included for intersection capacity analysis:

a) Existing Conditions
b) Background Conditions – Defined as Opening Year Conditions with traffic from approved projects in the area (note, if there are no or limited approved projects in the area of the project, an ambient growth rate could be considered in lieu of assigning traffic from approved projects in the area)

c) Background Plus Project Conditions – Defined as background conditions plus traffic from the proposed project
d) Cumulative No Project Conditions – Defined as ambient growth to the Cumulative Horizon (typically coinciding with the forecast horizon of the RIVTAM/RIVCOM travel demand forecasting model) that includes traffic from approved and pending projects in the area
e) Cumulative Plus Project Conditions – Defined as Cumulative No Project Conditions plus traffic from the proposed project

Phased projects could be evaluated in three ways. First, the analyst can identify which phase of a project triggers a needed improvement based on the comparison of Background Conditions to Background Plus Project Conditions. Alternatively, they can provide a phased assessment looking at opening years of each phase. Finally, for large phased projects, the project as a whole could be evaluated initially; however, subsequent traffic studies would have to be completed for each proposed phase implementation to ensure that improvements are implemented when they are needed. The City should be consulted to identify which approach is most appropriate for a proposed project if phasing is proposed; however, the first option noted above is recommended for most phased projects.

Recommendations for developing Ambient Traffic and Cumulative Traffic are provided in the next section of this document.

Data Collection, Project Trip Generation, and Forecasting Methodologies

The following recommendations pertaining to traffic count collection, project trip development, and traffic forecasting methodologies have been developed to maintain consistency across different TIAs and reflect current state of the practice.

Traffic Counts

Data for existing traffic conditions should be collected for the project using the following guidelines.

- Peak period turning movement counts at all study intersections, roadway segments (if required) and/or driveways, including bicycle and pedestrian counts at intersections with high non-automotive use, should be collected. For intersections with high percentages of heavy vehicles, turning movement counts should count heavy vehicles separately.
- Average Daily Traffic (ADT) for all roadways within study area (if required) and vehicle classification counts in areas with a high percentage of heavy vehicle use.
- Traffic counts should not be used if more than one year old without prior approval.
- Traffic data should not be collected on weeks that include a holiday and non-school session time periods unless approved by the City.
- Traffic data should not be collected between Thanksgiving and the first week of the new year without prior approval.
- Traffic counts should be conducted on Tuesdays, Wednesdays, or Thursdays.
- For congested conditions, back of queue estimates by approach (and turning movement) should be conducted every 15 minutes.

Unless directed otherwise by the City, counts should be collected during the following time frames presuming the time period captures the beginning and end times of any congested conditions.

- Morning (7:00 a.m. to 9:00 a.m.)
- Afternoon/evening (4:00 p.m. to 6:00 p.m.)
- Midday and "School-Release" peak hours – If directed by the City
- Other peak hours, off-peak, weekend or special event, may also be required depending on the project location and type of use

Starting in March of 2020, the COVID-19 Pandemic has drastically altered trip patterns and traffic levels as a result of the California Governor's Stay at Home Order and school closures. Any studies conducted during this initial or any subsequent stay at home order may qualify for special accommodations regarding data collection, including but not limited to:

- Use of archived data
- Use of modeled data
- Manual adjustment of available data subject to review by the City Traffic Engineer

Following the stay-at-home order(s) there will likely be a period where data continues to be impacted, discretion will be applied to facilitate the continued processing of impact assessments.

Count data should be included in the study appendices.

Trip Generation

Local trip generation surveys should be conducted for at least three similar project sites following the methodology contained in the Institute of Transportation Engineers (ITE) Trip Generation Handbook. If locally valid trip generation surveys cannot be conducted, then use of the ITE trip generation rates is allowed but limitations of the data should be fully disclosed especially related to land use context. Trip generation for high truck generating uses such as high cube warehouses, logistics space, etc. shall be determined with City input on a case-by-case basis. The proposed trip generation should be listed in the scoping form for review and approval prior to study initiation. Self-furnished operations estimates are not an acceptable means of establishing trip generation.

Trip internalization for mixed use developments (if applicable) should be calculated using state of the practice methodologies. At the time of this memorandum, the EPA's mixed-use trip generation (or MXD) methodology or ITE's mixed use trip generation method are the state of the practice and should be approved by the local agency prior to use in any studies. Trip internalization calculations (including gross trips, net trips after internalization, and MXD input assumptions (such as intersection density, TOD assumptions, acres, etc.)) should be documented in the TIA. Other factors affecting trip generation (pass-by trips, internal trips, or modal choice) require prior approval by the Traffic Engineering Division, and should be based on accepted traffic engineering documentation such as trip generation manual or other. Pass-by factors and internal captures must be approved as part of the Scoping Agreement. Reduced or net trips generated by the project should not

be used to analyze the project driveways and intersections(s) immediately adjacent to the project site; instead a full trip generation should be used.

For projects that anticipate the generation of significant truck traffic, all truck trips should be converted into passenger car equivalents (PCE) for the capacity analysis or the analyst should adjust the heavy vehicle percentage in the capacity assessment appropriately.

Trip Distribution

The project's trip distribution should be based on expected origin-destination patterns related to the project's land uses. Preferred methods include the use of mobile device data measuring trip distribution for similar sites or land uses (a minimum of three locations) and select zone assignments from RIVTAM and/or RIVCOM. Other data may be used to help refine trip distribution patterns including the relative location of population, commercial, recreational and employment centers; existing peak hour link and turning movement volumes; ADT volumes; proximity to regional transportation corridors; and knowledge of local and regional traffic circulation. Recommended routing of online navigational tools to & from the site under normal traffic conditions & peak hours should be considered. A preliminary trip distribution pattern map should be submitted in the scoping form for review and approval by the City.

The trip distribution may be further refined, after consultation with the City, based on consideration of following factors:

- Type of proposed development
- Location and intensity of development
- Conditions on the roadway network in the vicinity
- Similar land use in the vicinity
- Truck route system
- As directed by the City

Trip Forecasts

For Cumulative Conditions, the adopted Riverside County Travel Demand Model should be used to develop future traffic volume forecasts for the cumulative horizon year. Prior to running the model, the Traffic Study preparer should review the land use growth allocations in the study area to verify that the allocations are representative of the available land supply created by previously approved projects, the general plan, and applicable zoning.

It should be noted that certain large-scale proposals have the potential to create traffic impacts which are significantly greater than the traffic projections used in the Traffic model, which may affect modeling assumptions. For these projects, the City may request that the cumulative analysis utilize more detailed focused model runs in order to determine the realistic cumulative traffic. The following are guidelines of projects considered to be significant and subject to revised modeling requirements:

- 1,000 dwelling units or greater
- 20 acres of commercial or greater
- 100 acres of industrial or greater
- Any project producing 10,000 daily trips or greater

Intersection General Plan Consistency Requirements

Consistent with the acceptable LOS in the City's General Plan[4], the City considers the following criteria for application in a traffic study to identify infrastructure improvements required to provide acceptable operations. Please note that this analysis will be completed to demonstrate general plan consistency. Specific CEQA thresholds, which are based on VMT requirements, are described later in these guidelines and shall be the sole basis for determining CEQA-related impacts.

Intersection General Plan Consistency Requirements

Consistent with the acceptable LOS for the City's General Plan, the City considers the following intersection criteria when identifying operational deficiencies:

For projects in conformance with the General Plan:

a) LOS C is to be maintained at all street intersections
b) LOS D is to be maintained at intersections of Collector or higher classification
See: General Plan Policy CCM-2.3

For projects that propose uses or intensities above that contained in the General Plan:

Operational improvements are required when the addition of project related trips causes either peak hour LOS to degrade from acceptable (A through D) to unacceptable levels (E or F) or the peak hour delay to increase as follows:

- LOS A/B — By 10 seconds
- LOS C — By 8 seconds
- LOS D — By 5 seconds
- LOS E — By 2 seconds
- LOS F — By 1 seconds

Roadway Segment General Plan Consistency Requirements

Intersections typically provide the transportation constraint on vehicle capacity. As such, these guidelines focus on the evaluation of intersections. However, in some instances, roadway segment evaluation could be appropriate and may be requested by the City.

Consistent with the acceptable LOS for the City, the following roadway segment requirements should be considered and improvements recommended if the project exceeds the noted operational goals:

- Any study roadway segment operating at a LOS D or better without project traffic in which the addition of project traffic causes the segment to degrade to an LOS E or F[4] should identify improvements to achieve LOS D.
- Any roadway segment that operates unacceptably in the no project scenario where the project adds traffic in excess of 5% of the roadway capacity (e.g. a volume-to-capacity ratio increase of 0.05) should identify operational improvements (such as fiber optic interconnect, CCTV, traffic signal controller improvements) to improve operations.

Site Access, Safety, and Other Analyses

A project's TIA should analyze site access and safety around the project and on adjacent streets. The recommended analyses are summarized below.

Site Access Analysis

Include a brief discussion on internal circulation and proposed on-site parking. Show and discuss how vehicles would enter and exit via the main access driveways and identify any potential on-site or off-site circulation problems. This shall include Truck Turning paths for any proposed truck movements.

The following analyses are recommended to improve the project access circulation and to limit driveways and local street access on arterial streets:

a) **Intersection Sight Distance –** All on-site intersections, project access driveways or streets to public roadways should provide adequate sight distance. Adequate intersection sight distance should be determined using the Caltrans Highway Design Manual.
b) **Driveway Length and Gated Entrance –** Primary project driveways should have a throat of sufficient length proportional to the project size to allow vehicles to enter the project area without causing subsequent vehicles to back out onto the public street system.
c) **Limit Driveway Impacts –** Driveways and local streets access on arterial streets should be limited to minimize the impacts on arterial streets. Driveways should be located to maintain a reasonable distance from an adjacent intersection and/or driveway. Whenever possible, driveways should be consolidated with adjacent properties.
d) **Corner Clearance –** A driveway should be a sufficient distance from a signalized intersection so that right-turn egress movements do not interfere with the right-turn queue at the intersection. In addition, every effort should be made to provide right-turn egress movements with sufficient distance to enter the left-turn pocket at the adjacent intersection.
e) **Right Turn Lanes at Driveways –** If the project right turn peak hour volume is 50 or more vehicles, a right-turn deceleration lane should be reviewed for appropriateness on all driveways accessing major arterial and secondary streets. The length of right turn lane should be sufficient to allow a vehicle traveling at the posted speed to decelerate before entering the driveway as outlined in the Caltrans Highway Design Manual.
f) Adequacy of pedestrian facilities to/from the project site providing convenient and direct access for those users.
g) Bicycle accessibility from nearby bike routes to the project site.

h) Accessibility from adjacent transit stops to/from the project site providing convenient and direct access for those users.

Traffic Signal Warrant Analysis

A traffic signal warrant analysis should be performed for all unsignalized study intersections, including the project access points for any study year scenarios (existing, existing plus project, cumulative with and without project, etc.). Traffic signal warrant analysis should be performed using the latest edition of the California MUTCD. The warrant analysis should be included in the study appendices.

In determining the location of a new traffic signal on an arterial street or approaching an arterial street, traffic progression and simulation analysis may be required using Synchro/SimTraffic software or equivalent at the direction of the City.

Improvements for Transportation Impacts

As part of the final acceptance of a TIA, the City will review and approve any required improvements and/or fair share contributions necessary to improve the transportation-related deficiencies caused by the proposed development. These will be included as part of the conditions of approval and should be in addition to any improvements required by any other departments. Any transportation improvements based on a transportation study will be in addition to any other fees related to the existing fee programs (unless the needed improvement is already included in an existing fee program (such as TUMF).

Fair share contributions identified in the TIA and subsequently listed in the conditions of approval shall be required before a building permit will be issued. Improvements required in a TIA and subsequently listed in the conditions of approval shall be completed prior to occupancy.

All studies which propose increasing the number of travel lanes on a road or intersection as mitigation measures, either beyond existing conditions or for 2025 General Plan conditions beyond what is planned for that level of roadway shall clearly identify the impacts associated with such a change. These measures shall be assumed to be in place for the subsequent analyses. Exhibits showing the proposed lane configuration must be provided in the report.

Level of Service Improvements

Improvements for project level impacts should focus on providing operations that offset the project impact (e.g. achieve a "no project" level of service).

Cumulative deficiencies should include a fair-share contribution toward achieving acceptable levels of service as noted below. Alternatively, if a cumulative location is included in an existing traffic impact fee program (such as TUMF), payment of those fees would constitute an appropriate contribution.

Finally, the project applicant could revisit the project description in an effort to reduce the project impacts if viable.

For improvements that are needed where the applicant is not solely responsible, a fair share computation should be computed and reported for each such mitigation. The fair share amount should be calculated using the following formula:

$$\text{Fair share} = \frac{\text{project trips}}{\text{project trips + future development trips}}$$

Trips noted above should correspond to the peak hour where the deficiency occurs for intersection assessment or daily trips for roadway segment impacts. If a project degrades operations during both peak hours, then the analysis should identify the peak hour for fair share assessment that has the highest project burden for fair share contribution. The City may, at its discretion, condition the completion in full for any improvement should it be deemed necessary for the approval and operation of the project.

CEQA Assessment - VMT Analysis

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The following recommendations assist in determining VMT impact thresholds and mitigation requirements for various land use projects' TIAs.

Analysis Methodology

For purposes of SB 743 compliance, a VMT analysis should be conducted for land use projects as deemed necessary by the Traffic Division and would apply to projects that have the potential to have a significant impact.

Project Screening

There are three types of screening that lead agencies can apply to effectively screen projects from project-level assessment. These screening steps are summarized below:

Step 1: Transit Priority Area (TPA) Screening

Projects located within a TPA[5] may be presumed to have a less than significant impact absent substantial evidence to the contrary. This presumption may ***NOT*** be appropriate if the project:

1. Has a Floor Area Ratio (FAR) of less than 0.75;
2. Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
3. Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the City), with input from the Metropolitan Planning Organization); or

[5] A TPA is defined as a half mile area around an existing major transit stop or an existing stop along a high quality transit corridor per the definitions below.

Pub. Resources Code, § 21064.3 - 'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

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

4. Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Step 2: Low VMT Area Screening

Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident or per worker that is similar to the existing land uses in the low VMT area – provided the VMT of the area falls below thresholds.

For this screening in the WRCOG area, the RIVTAM travel forecasting model was used to measure VMT performance for individual jurisdictions and for individual traffic analysis zones (TAZs). TAZs are geographic polygons similar to Census block groups used to represent areas of homogenous travel behavior. Daily VMT per capita was estimated for each TAZ. This presumption may not be appropriate if the project land uses would alter the existing built environment in such a way as to increase the rate or length of vehicle trips.

To identify if the project is in a low VMT-generating area, the analyst may review the WRCOG screening tool and apply the appropriate threshold (identified later in this chapter) within the tool. Additionally, as noted above, the analyst must identify if the project is consistent with the existing land use within that TAZ and use professional judgement that there is nothing unique about the project that would otherwise be mis-represented utilizing the data from the travel demand model.

The WRCOG screening tool can be accessed at the following location:

http://gis.fehrandpeers.com/WRCOGVMT/

Step 3: Project Type Screening

Local serving retail projects less than 50,000 square feet 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.

In addition to local serving retail, the following uses can also be presumed to have a less than significant impact absent substantial evidence to the contrary as their uses are local serving in nature:

- Local-serving K-12 schools
- Local parks

- Day care centers
- Local-serving gas stations & car-washes
- Local-serving banks
- Local-serving hotels (e.g. non-destination hotels)
- Student housing projects
- Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS
- Projects consisting of 100% affordable housing
- Projects generating less than 110 daily vehicle trips[6]
    - This generally corresponds to the following "typical" development potentials:
        - 11 single family housing units
        - 16 multi-family, condominiums, or townhouse housing units
        - 10,000 sq. ft. of office[6]
        - 15,000 sq. ft. of light industrial[7]
        - 63,000 sq. ft. of warehousing[7]
        - 79,000 sq. ft. of high cube transload and short-term storage warehouse[7]

Step 4: Mixed-Use Projects

To identify if the proposed project requires a VMT analysis, the City of Riverside may evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included (e.g. residential and retail).

Step 5: Redevelopment Projects

[6] This threshold ties directly to the OPR technical advisory and notes that CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd. (e)(2).) Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.

[7] Threshold may be higher depending on the tenant and the use of the site. This number was estimated using rates from ITE's Trip Generation Manual.

Where a project replaces existing VMT generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to less than significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds described above should apply.

VMT Assessment for Non-Screened Development

Projects not screened through the steps above should complete VMT analysis and forecasting through the RIVCOM model (once complete) or RIVTAM model to determine if they have a significant VMT impact. This analysis should include 'project generated VMT' and 'project effect on VMT' estimates for the project TAZ (or TAZs) under the following scenarios:

- Baseline conditions - This data is already available in the web screening map.

- Baseline plus project for the project - The project land use would be added to the project TAZ or a separate TAZ would be created to contain the project land uses. A full base year model run would be performed and VMT changes would be isolated for the project TAZ and across the full model network. The model output must include reasonableness checks of the production and attraction balancing to ensure the project effect is accurately captured. If this scenario results in a less-than-significant impact, then additional cumulative scenario analysis may not be required (more information about this outcome can be found in the Thresholds Evaluation discussion later in this chapter).

- Cumulative no project - This data is available from WRCOG.

- Cumulative plus project - The project land use would either be added to the project TAZ or a separate TAZ would be created to contain the project land uses. The addition of project land uses should be accompanied by a reallocation of a similar amount of land use from other TAZs; especially if the proposed project is significant in size such that it would change other future developments. Land use projects will generally not change the cumulative no project control totals for population and employment growth. Instead, they will influence the land use supply through changes in general plan land use designations and zoning. If project land uses are simply added to the cumulative no project scenario, then the analysis should reflect this limitation in the methodology and acknowledge that the analysis may overestimate the project's effect on VMT.

The model output should include total VMT, which includes all vehicle trips and trip purposes, and VMT per capita. Total VMT (by speed bin) is needed as an input for air quality, greenhouse gas (GHG), and energy impact analysis while total VMT per capita is recommended for transportation impact analysis[8].

Both "plus project" scenarios noted above will summarize two types of VMT: (1) project generated VMT per capita and comparing it back to the appropriate benchmark noted in the thresholds of significance, and (2) the project effect on VMT, comparing how the project changes VMT on the network looking at Citywide VMT per capita or a sub-regional VMT per capita and comparing it to the no project condition.

Project-generated VMT shall be extracted from the travel demand forecasting model using the origin-destination trip matrix and shall multiply that matrix by the final assignment skims. The project-effect on VMT shall be estimated using a subregional boundary (such as the City limit or WRCOG TUMF Zone boundary) and extracting the total link-level VMT for both the no project and with project condition.

A detailed description of this process is attached to these guidelines.

CEQA VMT Impact Thresholds

A project would result in a significant project-generated VMT impact if the following conditions are satisfied:

1. For residential projects: the baseline or cumulative project-generated VMT per capita exceeds (pending threshold alternative identification by Planning Commission), or
2. For office and industrial projects: the baseline or cumulative project-generated VMT per employee exceeds (pending threshold alternative identification by Planning Commission), or

3. For new retail & other land use projects, utilizing a threshold consistent with the net total VMT of the jurisdiction.

For projects inconsistent with the General Plan or RTP / SCS, or those found to have an impact using efficiency-based metrics (above), additional assessment is needed. In these instances, the project's effect on VMT would be considered significant if it resulted in either of the conditions to be satisfied:

1. For residential projects: The baseline or cumulative link-level boundary VMT per capita (City) to increase under the plus project condition compared to the no project condition, or
2. For office projects: the baseline or cumulative link-level boundary VMT per employee (City) to increase under the plus project condition compared to the no project condition.
3. For retail & other land use projects: the baseline or cumulative link-level boundary VMT (City) to increase under the plus project condition compared to the no project condition.

Please note that the cumulative no project shall reflect the adopted RTP/SCS; as such, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant subject to consideration of other substantial evidence.

VMT Mitigation Measures

To mitigate VMT impacts, the following choices are available to the applicant:

1. Modify the project's built environment characteristics to reduce VMT generated by the project
2. Implement transportation Demand Management (TDM) measures to reduce VMT generated by the project.
3. Participate in a VMT fee program and/or VMT mitigation exchange/banking program (if they exist) to reduce VMT from the project or other land uses to achieve acceptable levels

Key TDM measures that are appropriate to the region have been identified as part of a WRCOG study and can be accessed at the following location,

https://www.fehrandpeers.com/wp-content/uploads/2019/03/TDM-Strategies-Evaluation.pdf

Measures appropriate for most of the WRCOG region are summarized in Attachment B of the TDM Strategies Evaluation Memorandum. Given the City of Riverside's position as the urban core of the County, it may be appropriate to use mitigation outside of the rural/suburban context mitigations identified by WRCOG. Evaluation of VMT reductions should be evaluated using state-of-the-practice methodologies recognizing that many of the TDM strategies are dependent on building tenant performance over time. As such, actual VMT reduction cannot be reliably predicted and monitoring may be necessary to gauge performance related to mitigation expectations.

CEQA Assessment - Active Transportation and Public Transit Analysis

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Potential impacts to public transit, pedestrian facilities and travel, and bicycle facilities and travel can be evaluated using the following criteria.

- A significant impact occurs if the project conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

Therefore, the TIA should include analysis of a project to examine if it is inconsistent with adopted policies, plans, or programs regarding active transportation or public transit facilities, or otherwise decreases the performance or safety of such facilities and make a determination as to whether it has the potential to conflict with existing or proposed facilities supporting these travel modes.

Plans and policies to review include:

- The City of Riverside General Plan – Circulation & Community Mobility Element
- City of Riverside Bicycle Master Plan
- City of Riverside Climate Action Plan
- Area Specific Plans as-applicable
- WRCOG regional Active Transportation Plan

Transportation Impact Study Format

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The recommended TIA format is as follows:

1. Executive Summary
    a. Table summarizing significant impacts and mitigation measures
    b. Development project identification – City of Riverside Case Number, Public Works Traffic Reference number, any related case numbers i.e. GPA/SP number, EIR number, etc.
    c. Development project description
        i. Project size and description
        ii. Existing land use and zoning
        iii. Proposed land use and zoning
        iv. Site plan of proposed project (reduced) (Exhibit)
        v. Proposed project opening year
        vi. Proposed project phasing
        vii. Indicate if project is within another agency Sphere of influence
2. Introduction
    a. Purpose of the TIA and study objective
    b. Project location and vicinity map (Exhibit)
    c. Project size and description
    d. Existing and proposed land use and zoning
    e. Site plan and proposed project (Exhibit)
    f. Proposed project opening year and analysis scenarios
3. Methodology and Impact Thresholds
4. Existing Conditions
    a. Identify Study Area and Intersections
    b. Existing roadway network
    c. Existing roadway descriptions (number of lanes, etc.)
    d. Existing traffic control and intersection geometrics (Exhibit)
    e. Existing traffic volumes – AM and PM peak hour intersection turning movements and roadway links (if required). Peak hour counts during mid-day or weekends may be required. (Exhibit)
    f. Existing level of service (LOS) at intersections (Table)
    g. Existing bicycle facilities (Exhibit)
    h. Existing transit facilities (Exhibit)
    i. Existing pedestrian facilities
    j. Existing GP Circulation Element in the project vicinity (Exhibit)

5. Project Traffic
    a. Trip generation (Table)
    b. Trip distribution and assignment (Exhibit)
    c. Project peak hour turning movements and ADT (Exhibit)
6. Background Conditions (Opening Year) Analysis
    a. No Project analysis
        i. Committed (funded) roadway improvements
        ii. Approved project trip generation (Table, if required)
        iii. Approved project trip assignment and distribution (Exhibit, if required)
        iv. Peak turning movement and ADT (Exhibit)
        v. Intersection level of service (Table)
        vi. Roadway segment level of service (Table)
    b. Plus Project analysis
        i. Plus Project peak turning movement and ADT (Exhibit)
        ii. Intersection level of service (Table)
        iii. Roadway segment level of service (Table)
        iv. Identification of intersection and roadway segment deficiencies
7. Cumulative Year Analysis
    a. No Project analysis
        i. Committed (funded) roadway improvements
        ii. Pending projects and verification of how they are included in the travel demand forecasting model
        iii. Cumulative Year peak turning movement and ADT (Exhibit)
        iv. Intersection level of service (Table)
        v. Roadway segment level of service (Table)
    b. Plus Project Analysis
        i. Plus Project peak turning movement and ADT (Exhibit)
        ii. Intersection level of service (Table)
        iii. Roadway segment level of service (Table)
        iv. Identification of intersection and roadway segment deficiencies
8. Traffic Signal Warrant Analysis
9. Site Access Analysis
10. Safety and Operation Improvement Analysis
11. Active Transportation and Public Transit Analysis

12. Improvements and Recommendations
    a. Proposed improvements
    b. Recommended Improvements categorized by whether they are included in fee plan or not, as well as whether they are planned for construction. (Identify if these improvements are included in an adopted fee program)
13. Vehicle Miles Traveled (VMT) Analysis
    a. Project VMT per person/employee for all analysis scenarios
    b. Project effect on VMT for all analysis scenarios
    c. Identification of VMT impacts
    d. Proposed VMT Mitigation Measures
14. Appendix
    a. Approved scope of work
    b. Traffic counts
    c. Intersection analysis worksheets
    d. VMT and TDM calculations
    e. VMT and TDM mitigation calculations
    f. Signal warrant worksheets

Attachments

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Traffic Analysis Scoping Form

This scoping form shall be submitted to the City of Riverside Traffic Engineering Division

Project Identification:

Case Number:	
Related Cases: SP No. EIR No. GPA No. CZ No.	
Project Name:	
Project Address:	
Project Opening Year:	
Project Description:	

	Consultant:	**Developer:**
Name:		
Address:		
Telephone:		
Fax/Email:		

Scoping & Study Fees:

Fees to be made payable to "City of Riverside" and delivered to Land Development. City Hall 3rd Floor, 3900 Main Street, Riverside, CA 92522

1) Scoping Agreement Fee (For all projects not screened from analysis): **$271.00**

2) TIA Review (For projects with both LOS & VMT analysis of any scale, or standalone LOS analyses with over 100 vehicle trips per hour): **$2671.02**

3) TIA Review (For standalone VMT analysis, or standalone LOS analyses with under 100 vehicle trips per hour): **$1288.20**

Trip Generation Information:

Trip Generation Data Source: _____

Current General Plan Land Use:

_____

Proposed General Plan Land Use:

_____

Current Zoning:

_____

Proposed Zoning:

_____

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips						
PM Trips						

Trip Internalization: ☐ Yes ☐ No (_____% Trip Discount)

Pass-By Allowance: ☐ Yes ☐ No (_____% Trip Discount)

Potential Screening Checks

Is your project screened from specific analyses in accordance with City Guidelines?

Is the project screened from LOS assessment? ☐ Yes ☐ No

LOS screening justification (see Page 6 of the guidelines): _____

_____

_____

_____

_____

Is the project screened from VMT assessment? ☐ Yes ☐ No

VMT screening justification (see Pages 23-25 of the guidelines): _____

_____

_____

_____

_____

_____

Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution):

North	South	East	West
%	%	%	%

- Attach list of Approved and Pending Projects that need to be considered (provided by the lead agency and adjacent agencies)
- Attach list of study intersections/roadway segments
- Attach legible site plan
- Note other specific items to be addressed:
  - Site access
  - On-site circulation
  - Parking
  - Consistency with Plans supporting Bikes/Peds/Transit
  - Other _____
- Date of Traffic Counts _____
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)

VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model _____
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Specific Issues to be addressed in the Study (in addition to the standard analysis described in the Guidelines) (To be filled out by the Public Works Traffic Engineering Division)

_____

_____

Detailed VMT Forecasting Information

Most trip-based models generate daily person trip-ends for each TAZ across various trip purposes (HBW, HBO, and NHB, for example) based on population, household, and employment variables. This may create challenges for complying with the VMT guidance because trip generation is not directly tied to specific land use categories. The following methodology addresses this particular challenge among others.

Production and attraction trip-ends are separately calculated for each zone, and generally: production trip-ends are generated by residential land uses and attraction trip-ends are generated by non-residential land uses. OPR's guidance addresses residential, office, and retail land uses. Focusing on residential and office land uses, the first step to forecasting VMT requires translating the land use into model terms, the closest approximations are:

- Residential: home-based production trips
- Office: home-based work attraction trips

Note that this excludes all non-home-based trips including work-based other and other-based other trips.

The challenges with computing VMT for these two types of trips in a trip-based model are 1) production and attraction trip-ends are not distinguishable after the PA to OD conversion process and 2) trip purposes are not maintained after the mode choice step. For these reasons, it not possible to use the VMT results from the standard vehicle assignment (even using a select zone re-assignment). A separate post-process must be developed to re-estimate VMT for each zone that includes trip-end types and trip purposes. Two potential approaches to tackle this problem are described below.

Quick and Easy

This approach uses standard model output files and requires minimal custom calculations. It is based on a regional MPO trip-based model with peak (PK) and off-peak (OP) skims and person trip production-attraction (PA) matrices.

- Calculate custom vehicle trip PA matrices from PK and OP person trip matrices
    - Keep trip purposes and modes separate
    - Use average vehicle occupancy rates for drive-alone and shared ride trips
- Use the final congested drive-alone PK and OP skim matrices to estimate trip length between zones
- Multiply the skim matrices by vehicle trip matrices to estimate VMT

- Sum the PK and OP results to estimate daily VMT and aggregate mode trip purpose and mode
- Calculate automobile VMT for individual TAZs using marginal totals:
    - Residential (home-based) - row total
    - Office (home-based work) - column total

Detailed and Complicated

The quick and easy process described above simplifies the approach but does not account for different congestion patterns throughout the day (AM, MD, PM, and NT), the direction of travel (all productions are origins and all attractions are destinations), or the benefits of exclusive lanes (HOV or HOT lanes). This more detailed approach attempts to address these limitations and better estimate the VMT produced by the vehicle assignment model.

- Re-skim final loaded congested networks for each mode and time period
- Run a custom PA to OD process that replicates actual model steps, but:
    - Keeps departure and return trips separate
    - Keeps trip purpose and mode separate
    - Converts person trips to vehicle trips based on auto occupancy rates and isolates automobile trips
    - Factors vehicle trips into assignment time periods
- Multiply appropriate distance skim matrices by custom OD matrices to estimate VMT
- Sum matrices by time period, mode, and trip purpose to calculate daily automobile VMT
- Calculate automobile VMT for individual TAZs using marginal totals:
    - Residential (home-based) - row of departure matrix plus column of return matrix
    - Office (home-based work) - column of departure matrix plus row of return matrix

Appropriateness Checks

Regardless of which method is used, the number of vehicle trips from the custom PA to OD process and the total VMT should match as closely as possible with the results from the traditional model process. The estimated results should be checked against the results from a full model run to understand the degree of accuracy. Note that depending on how each model is setup, these custom processes may or may not include IX/XI trips, truck trips, or special generator trips (airport, seaport, stadium, etc.).

When calculating VMT for comparison at the study area, citywide, or regional geography, the same methodology that was used to estimate project-specific VMT should be used. The VMT for these comparisons can be easily calculated by aggregating the row or column totals for all zones that are within the desired geography.

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