EXHIBIT B

City of Upland Traffic Impact Analysis Guidelines

FEHR PEERS

July 2020

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Introduction

One of the fundamental roles of government agencies is the construction and maintenance of public infrastructure facilities including roadways, rail and bus facilities, bicycle and pedestrian infrastructure, water lines, sanitary sewer lines, stormwater treatment facilities, parks, and other public facilities.

When private development occurs, it is the responsibility of government to ensure that there are adequate public facilities to serve incremental population and employment growth. For the transportation system, one way to address this issue is the preparation of a Traffic Impact Analysis (TIA).

For the past several decades, the preparation of a TIA was integrated into the CEQA process, in which the TIA was used primarily to analyze a project's impacts under CEQA. However, with the passage of SB 743, changes to the TIA process are necessary. Specifically, a TIA may be needed as a stand-alone document which is a requirement of project approval and will include information for the decision makers that is not required as part of the CEQA process.

The purpose of Transportation Impact Analysis (TIA) Guidelines is to provide general instructions for analyzing the potential transportation impacts of proposed development projects. These guidelines present the recommended format and methodology that should generally be utilized in the preparation of TIAs. These recommendations are general guidelines and the City has the discretion to modify the TIA requirements based on the unique characteristics of a particular project.

Background Information

SB 743, signed by the Governor in 2013, is changing the way transportation impacts are identified. Specifically, the legislation has directed the Office of Planning and Research (OPR) to look at different metrics for identifying transportation as a CEQA impact. The Final OPR guidelines were released in December 2018 and identified vehicle miles of travel (VMT) as the preferred metric moving forward. The Natural Resources Agency completed the rule making process to modify the CEQA guidelines in December of 2018. The CEQA Guidelines identify that, by July of 2020 all lead agencies must use VMT as the new transportation metric for identifying impacts for land use project.

In anticipation of the change to VMT, the City of Upland recently completed a SB 743 Implementation Study in partnership with SBCTA in support of agencies throughout the county. This regional approach focuses on important implementation questions about the methodology, thresholds, and mitigation approaches for VMT impact analysis. The regional approach includes the following main components.

- Thresholds Evaluation Memorandum – Potential thresholds agencies could consider when establishing thresholds of significance for VMT assessment
- Sample Projects Memorandum – Types of VMT that could be considered for impact assessment and how project assessment could be performed.

- Tools Evaluation Memorandum – Types of tools that could be used to estimate VMT and the pros/cons associated with each tool
- Mitigation Memorandum – Types of mitigation that can be considered for VMT
- VMT Screening Tool – An on-line GIS tool that can be used for VMT screening. This tool is currently under development but will be available for all SBCTA member agencies to use.

As noted in CEQA Guidelines Section 15064.7(b) below, lead agencies are encouraged to formally adopt their significance thresholds and this is key part of the SB 743 implementation process.

> *(b) Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. Lead agencies may also use thresholds on a case-by-case basis as provided in Section 15064(b)(2).*

Is Level of Service (LOS) Still Important?

The City has adopted vehicle LOS policies that set standards for which local agency infrastructure will strive to maintain. These policies are contained in the General Plan and therefore apply to discretionary approvals of new land use and transportation projects. Therefore, these guidelines also include instructions for vehicle LOS analysis consistent with General Plan requirements. The LOS guidelines are largely based on the SBCTA Congestion Management Plan (CMP) guidelines that were updated in 2016 and reflect state of the practice.

CEQA Changes

Since the last CMP TIA Guidelines update, SB 743 was finalized through the rule making process. 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 contains amendments to current congestion management law that allows cities and counties to effectively opt-out of the LOS standards that would otherwise apply in areas where Congestion Management Plans (CMPs) are still used (including San Bernardino County). Further, 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. For transportation projects, lead agencies may select their own preferred metric but must support their decision with substantial evidence that complies with CEQA expectations. 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 expectations and build on the information prepared for SBCTA's Implementation Study.

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. Introduction
2. Need for Level of Service Analysis
3. CEQA Assessment - VMT Analysis
4. CEQA Assessment - Active Transportation and Public Transit Analysis
5. Transportation Impact Analysis Format

Need for Level of Service Analysis

These guidelines describe the key elements required for preparing Traffic Impact Analysis Reports (TIA Reports) consistent with the countywide goals toward the Congestion Management Program (CMP) in San Bernardino County.

TIA Reports shall be prepared by applicants for land use projects when local criteria and thresholds indicate they are necessary. However, TIA Reports must be prepared to satisfy CMP requirements, when a proposed change in land use, development project, or at local discretion, a group of projects are forecast to equal or exceed the CMP threshold of 250 two-way peak hour trips generated, based on trip generation rates published for the applicable use or uses in the Institute of Transportation Engineers' Trip Generation or other CMA-approved data source. Pass-by trips shall not be considered in the threshold determination. However, industrial, warehousing and truck projects shall convert trucks to PCE's before applying the threshold *(although, for intersection assessment, the report could appropriately adjust the highway capacity manual capacity factors to reflect the increase in heavy vehicles)*.

A TIA which includes LOS analysis shall be required for a proposed project that meets any of the following criteria:

- When either the AM or PM peak hour trip generation is expected to exceed 100 vehicle trips from the proposed development.
- Projects that will add 51 or more trips during either the AM or PM peak hours to any intersection.
- Any project where variations from the standards and guidelines provided in this manual are being proposed.
- When determined by the City Traffic Engineer that existing or proposed traffic conditions in the project vicinity have unique characteristics that warrant evaluation.

TIA Report Content for Level of Service Analysis

The TIA Report may be contained within other similar documents (e.g. an EIR prepared under CEQA), or it may be an independent document. The intent is to address all CMP concerns without duplication of other work. In some jurisdictions, the TIA Report may be prepared by the developer or developer's consultant. In other jurisdictions, the TIA Report may be prepared by the jurisdiction or jurisdiction's consultant. In either case, it is in the interest of all parties that the participants fully understand and come to agreement on the assumptions and methodology prior to conducting the actual analysis. This is particularly important when considering using assumptions that vary from the norm. The City may request a meeting with the developer and/or preparer of the TIA Report to discuss the methodology prior to the initiation of work on the analysis. A meeting with the CMA and/or Caltrans, where applicable, is also encouraged to address issues associated with large or extraordinary projects.

The following outline and commentary represent the recommended structure for the TIA Report.

I. Introduction

Set the stage for the analysis, providing background information necessary for the unfamiliar reader to understand the magnitude of the project, location of the project and special characteristics.

Project, general plan, or specific plan description

The description must include project size by land use type, location of project, approximate location of proposed access points to the local and regional roadway system and movements from adjacent streets allowed into and out of the project. This should be shown in a site diagram. Special characteristics of the site, such as unusual daily or seasonal peaking characteristics or heavy involvement of truck traffic, should be mentioned. If the description is included in another part of a more comprehensive document, that is acceptable.

Analysis methodology

Provide a general description (overview) of the process used to analyze the project. Analysis years should be specified and the approach to the modeling/traffic forecasting process should be explained. The sources of information should be identified. The study area and method for LOS analysis for the various roadway types should be identified. At a minimum, the study area must include all freeway links with 100 or more peak-hour project trips (two-way) and other CMP roadways with 50 or more peak-hour project trips (two-way). The study area does not end with a city or county boundary. The study area is defined by the magnitude of project trips alone. In most cases, the analysis need not extend more than five miles beyond the project site, even if there are more than 50 project trips on an arterial and 100 project trips on a freeway. However, analysis of projects in isolated areas with few access routes should be continued until the 100 or 50-trip threshold is met. Within the defined study area, all "key intersections," as listed in the most current CMP, must be analyzed. Key intersections represent intersections of CMP roadways plus those additional intersections recognized by local jurisdictions and/or SBCTA to be important to mobility on CMP roadways. At a minimum, key intersections will include signalized intersections operating at LOS D or below. The distribution of traffic must be shown for all roadways on which project trips occur (except those for internal circulation), whether or not they are on the CMP network.

The analysis of traffic operations and LOS is to be provided for the following conditions and is to include an assessment of required traffic improvements for project opening day and future conditions.

1. Existing conditions – the conditions at the time of TIA preparation without the inclusion of the project generated trips. Existing deficiencies should be identified, but analysis of improvements is not required. The existing conditions analysis must include the full project effect area as defined above.

2. Project opening day conditions - the conditions on the opening day of the project for two scenarios: 1) excluding the project traffic and 2) including the project traffic. Assume full trip generation effect of the site. Full improvement analysis is to be performed for

project opening day conditions. If it is deemed more appropriate because of the nature of the project, another intermediate scenario may be included to focus on the access requirements and/or immediate area surrounding the project, subject to a request by the City of Upland. The methodology used for distribution of project traffic at project opening day conditions is at the discretion of the City.

3. Future conditions - the conditions for two model forecast year scenarios: 1) excluding the project traffic and 2) including the project traffic. Full improvement analysis is to be performed for future conditions. In addition, a staging analysis of improvements may be required for large projects constructed over a long time period. The need for a staging analysis will be determined by the City.

The analysis of the project opening day and future condition shall be based on, at a minimum, the PM peak-hour of the adjacent street traffic. An analysis of the AM peak-hour of the adjacent street traffic is also required for developments containing residential land uses and may be required for other types of development at local discretion. Analysis may be required for peak-hours other than the AM and PM peak for some land uses. This determination will be made by the local jurisdiction. The peak traffic generation hour of the development, if different from peak AM and PM hours, must also be identified and the total vehicle trips during the peak-hour of the generator must be estimated. This will facilitate a decision regarding the need to evaluate time periods other than the peak-hours of the adjacent streets.

II. Existing conditions

Existing roadway system

Provide a map and brief written description of the roadway network. The number and type of lanes on freeways, principal arterials and other affected roadways should be identified. Signalized intersections and plans for signalization should be identified. The existing number of lanes at key CMP intersections should be clearly identified on a graphic or in conjunction with the LOS analysis output. Maps of the CMP network are available in the Congestion Management Program documentation, available from the CMA. Also describe the relevant portions of the future network as specified with officially approved funding sources.

Existing volumes

Existing average weekday daily traffic (AWDT) should be identified for the CMP links in the study area. Historic volume growth trends in the study area should be shown. Consult the local jurisdiction, Caltrans and San Bernardino County for additional information.

Existing LOS

A LOS analysis must be conducted on all existing segments and intersections on the CMP network potentially affected by the project or plan (as defined by the thresholds in Section I. B). Urban segments (i.e., segments on roadways that are generally signalized with spacing less than 2 miles)

do not require segment analysis. Segment requirements can normally be determined by the analysis of lane requirements at intersections. Freeway mainline must be analyzed and ramp/weaving analysis may be required at local discretion, if a ramp or weaving problem is anticipated. Several software packages are available for conducting LOS analysis for signalized intersections, freeways and other types of roadways. The software package and version used must be identified. Normally, the existing LOS analysis for intersections will be run using optimized signal timing, since the future analysis will normally need to be run using optimized timing. Signal timing optimization should consider pedestrian safety and signal coordination requirements. Minimum times should be no less than 10 seconds.

Saturation flow rates are considered as average field measured saturation flow rates and in no case shall the adjusted saturation flow rates be allowed to go lower than the specified saturation flow rates listed on page C-13 of the CMP, when field data are not available. However, there shall be no restriction on minimum saturation flow rates if actual saturation flow rates are available.

Default lost time is two seconds per phase and a clearance signal time of three seconds. Without local data to show otherwise, a peak-hour factor of 0.95 may be assumed for existing and full generation scenarios. Variations from these values must be documented and justified. LOS analyses should be field-verified so that the results are reasonably consistent with observation and errors in the analysis are more likely to be caught. A brief commentary on existing problem areas must be included in this section, bringing existing problems to the attention of the readers.

Only project opening day and future scenarios with project require that traffic operational problems be addressed to provide LOS E or better operation. If the lead agency or an affected adjacent jurisdiction requires improvements to a higher LOS, this takes precedence over the CMP requirements. The LOS threshold for State highway facilities will be the same as the jurisdiction where the facility is located but no greater than a 45 second average delay per vehicle in the peak hour (middle of LOS "D"). Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing LOS should be maintained.

Related general plan issues

The relationship to the general plan may be identified. This section should provide general background information from the Traffic Circulation Element of the General Plan, including plans for the ultimate number of lanes, new roadways planned for the future and other information that provides a context for how the proposed project interrelates with the future planned transportation system.

III. Future conditions

Traffic forecasts

One of the primary products of the TIA is the comparison of future traffic conditions with and without the project. The primary forecasts will be for the CMP forecast year (consult the CMA for the most currently applicable forecast years). If a project is phased over a development period past the CMP forecast year, a buildout forecast with forecast background traffic must also be provided. There are two components of the forecast that need to be considered: background traffic and project traffic. Acceptable methodologies for these forecasts are described below.

Project Traffic Forecasts

Two basic alternatives are available for forecasting project traffic:

- Manual method - Generate project trips using rates from the ITE Trip Generation report. Distribute and assign the trips based on the location of the project relative to the remainder of the urban area and on the type of land use. Rather than relying on pure judgment to develop the distribution of project traffic, the future year CMP model select zone needs to be obtained from SCAG to determine the distribution pattern. The percentage distribution should be reasonably related to the location of and the number of trips generated by zones surrounding the project. Computer-assisted trip distribution and assignment methods may be used as long as they reasonably represent the travel characteristics of the area in which the project is located. It should be noted that the model does not forecast project trucks. Therefore, distribution needs to be made in a reasonable manner.
- Use of local model - Create a zone or zones that represent the project (if not already contained in the local model). The CMP model may be used if new zones are created to represent the project (it is unlikely that the CMP model will already have zones small enough to represent the project). The zone or zones should include the exact representation of driveway locations with centroid connectors. It is important that the driveway representations be exact to produce acceptable turning movement volumes. Some adjustments to the turning movement volumes may be needed, depending on the adequacy of this representation.

The above methodologies may produce different results, both in the generation of trips and the distribution of trips. However, both methods will have application, depending on the jurisdiction and on the type and size of project. It should be noted that a model select zone run shall be used for distribution and ITE trip generation rates for project trips.

Background Traffic Forecasts

Background traffic refers to all traffic other than the traffic associated with the project itself. The background traffic shall include intersection turning movement and segment truck volumes by classification (converted to PCE's) as shown on page C-12 on arterial streets of the CMP, interchange ramps and mainline freeway lanes. Future scenarios shall use the truck model (converted to PCEs) or 150 percent of the existing truck volume for arterials and freeway ramps and 160 percent for

mainline freeway lanes in a special generator area such as found in the City of Fontana (between I-15 and Citrus Avenue and between San Bernardino Avenue and Jurupa Avenue).

Several alternatives for forecasting background traffic are:

- For project opening day analysis - Use accepted growth rates provided by the jurisdictions in which the analysis is to take place. Each jurisdiction's growth rates should be used for intersections and segments within that jurisdiction. A table of growth rates may be available from the jurisdictions.
- For horizon year - The traffic passenger vehicle and truck classification (in PCEs) models will provide the needed forecasts and if requested, passenger vehicle background plus project forecasts. Local models may also be used to generate intersection and segment forecasts, if a traffic refinement process is properly applied to maximize the quality and reasonableness of the forecasts. Alternatively, the CMP model may be used to generate growth factors by subarea, which may be applied to existing intersection and segment volumes. The separate forecasting of background traffic by each TIA Report preparer is redundant, will only create conflict among reports and should be avoided by the city/county providing an acceptable background forecast for use by all TIA Report preparers. Ideally, cities and/or the County should establish the background forecasts annually for use by project applicants. Until the city/county is in a position to produce these forecasts on a routine basis, they may wish to use the results of the background forecasts from prior acceptable TIA Reports as the basis for background forecasts for other TIA Reports. The availability of such forecasts should be established before initiating the preparation of a TIA Report. If the CMP model is being used as the basis for the forecast, assume that the project is not included in the CMP model forecast (unless it can be definitively proven otherwise). If a local model is being used, the background traffic will be derived by subtracting the project traffic from the forecast where the project is already represented in the model. Where the project is not represented in the model, the background traffic can be directly derived from the model (with appropriate refinement to maintain quality and reasonableness of the forecasts).

A Note on Methodology for General Plans and Specific Plans:

In the case of analysis of general plan revisions/updates or specific plans, the same approach is applied as above. However, the "project" to be analyzed shall consist of the proposed land use. For threshold determination use the difference between the previously approved general plan and the proposed revision to the general plan. Unless otherwise agreed by the City, the analysis must assume the maximum intensity of land uses allowed (i.e., worst case) on the parcels to which the revision applies. All new specific plans must be analyzed based on worst case assumptions. Although general plans may not identify specific access locations, the analysis must assume access locations that are reasonable, based on the location and size of the plan.

A. Traffic added by project, general plan revision/update, or specific plan

The methods for generating and distributing project trips must be consistent with the appropriate methodology listed above. The total number of trips generated by the project must be specified by land use. The source of the trip generation rates must be documented. Project trips (inbound and outbound) must be identified on a graphic map for both the peak hour or hours being studied.

Any assumed reductions in trip generation rates, such as internal trips and transit/TDM reductions must be documented. Pass-by trips may be allowed only for retail uses and fast-food restaurants. The pass-by and internal trip percentages and methodology must be consistent with the estimates and methodology contained in the latest ITE Trip Generation handbook. The internal trip percentage must be justified by having a mixed-use development of sufficient size. In special cases, larger reductions may be allowed; but these must be documented and justified. Reductions for transit or TDM must be accompanied by an explanation of how the strategies will actually be implemented and may require a monitoring program.

Industrial and warehouse truck uses must also show the estimated number and distribution of truck trips (in PCE's) for the same hours. The methodology utilized to obtain trip generation rates and truck percentages applied in traffic impact analyses for industrial and warehouse (including 'high-cube') land uses must be clearly defined. Trip rates shall be obtained from the latest edition of ITE's Trip Generation manual or from current and relevant studies and shall be approved by the City.

B. Transit and TDM considerations

Transit and travel demand management strategies are a consideration in many development projects. Requirements within each jurisdiction are contained in the local TDM ordinance, to be adopted by each local jurisdiction as part of the CMP requirements. Examples of items to include are location of transit stops in relationship to the proposed project, designation of ridesharing coordinator, posting of information on transit routes and ridesharing information, provision of transit passes, etc.

C. Traffic model forecasts

Provide a map showing link volumes by direction. All CMP arterial links with 50 or more peak-hour project trips (two-way) and freeway links with 100 or more peak-hour project trips (two-way) must be shown. The factor to derive a peak-hour from the three-hour AM peak period is 0.38. The factor to derive a peak-hour from the four-hour PM peak is 0.28. All model forecasts shall be post processed. Appendix E in the CMP documentation contains guidelines for model post processing.

D. Future LOS

Compute levels of service for CMP segments and intersections based on the procedures in the latest Highway Capacity Manual. Refer to the procedures adopted in Chapter 2 of the CMP and the assumptions specified in section II.C of this appendix. Copies of the volumes, intersection geometry, capacity analysis worksheets and all relevant assumptions must be included as appendices to the TIA Report. It should be noted that the v/c ratio and implied LOS that can be

output by travel demand models are different from the LOS analysis prescribed in this section. The capacities used in the model are not typically the same capacities as used in the capacity analysis.

Intersections and segments on State highway facilities should be analyzed as a coordinated system. Left turn, through and right turn lane queuing analysis is highly desirable to validate an intersection's LOS. This more detailed analysis is meant to ensure the various movements do not overflow and impede adjacent movements and is left to the discretion of the City.

E. Description of projected LOS problems

Identify resulting levels of service for intersections and segments, as appropriate, on a map for applicable peak-hours. Describe in the text the nature of expected LOS problems. Describe any other effects that the project may also have on the CMP roadway network, particularly access requirements.

F. Project contribution to total new volumes (forecast minus existing) on analyzed links

Compute the ratio of traffic generated by the proposed development to the total new traffic (including project traffic) generated between the existing condition and forecast year for each analyzed link or intersection. The purpose of this calculation is to identify the proportion of volume increase that can be attributed to the proposed project. This will be a necessary component of any deficiency plans prepared under the CMP at a later date. The calculations are to be conducted for all applicable peak hours. The results may be shown on a map or in a table by percentages to the nearest tenth of a percent.

IV. Project Deficiencies.

The improvement of project deficiencies is designed to identify potential LOS problems and to address them before they occur. This will also provide a framework for negotiations between the local jurisdiction and the project developer. The CMA will not be involved in these negotiations unless requested by a local jurisdiction. Deficiencies beyond the boundaries of the jurisdiction must be identified in the same fashion as effects within the jurisdictional boundary. Affected local agencies outside the boundary will be provided an opportunity for review of the TIA Report. Negotiations with these outside jurisdictions and with Caltrans are a possible outcome, depending on the magnitude and nature of the effects.

For the CMP, the improvements must bring the roadway into conformance with the LOS standards established for the CMP. However, local agencies may require conformance to higher standards, and these must be considered in consultation with the local jurisdiction. Measures to address local needs that are independent from the CMP network should be included in the TIA Report for continuity purposes. Consult the local jurisdiction to determine requirements which may be beyond the requirements of the CMP. The information required in this part of the TIA Report is described below.

Other transportation improvements already programmed and fully funded

Only transportation improvements that are fully funded should be assumed in forecast.

Roadway improvements needed to maintain CMP LOS standard

These should include an evaluation of intersection turn lanes, signalization, signal coordination and link lane additions, at a minimum. If a freeway is involved, lane requirements and ramp treatments to solve LOS deficiencies must be examined. Prior studies on the same sections may be furnished to the preparer of the TIA and such studies may be referenced if they do, in fact, provide the necessary improvement for the proposed project. However, the calculation of percentage of contribution of the project to the growth in traffic must still be provided for the appropriate peak-hours, as described earlier. If the physical or environmental constraints make improvements unlikely, then the contribution may be used to improve LOS elsewhere on the system or another location that would relieve the effect. The point of referencing a previously conducted study is to avoid unnecessary duplication of effort on the same sections of roadway. Copies of previously conducted relevant studies in the area may be obtained from the local jurisdictions or the CMA, including any plans resulting from the annual modeling runs for the CMP.

Other improvements needed to maintain the LOS standard

In some cases, additional transit and TDM strategies beyond what was in the original assumptions may be necessary to provide an adequate LOS. These must be described and the method for implementation must be discussed.

LOS with improvements

The LOS with improvements must be computed and shown on a map or table along with the traffic LOS without improvements. Delay values, freeway volume/capacity ratios, or other measures of LOS must be included in the results (could be in an appendix) along with the letter designation.

Cost estimates

The costs of improving deficiencies must be estimated for deficiencies that occur either within or outside the boundaries of the jurisdiction. The costs must be identified separately for each jurisdiction and for Caltrans roadways. Prior studies and cost estimates by SANBAG, Caltrans and other jurisdictions may be referenced. Used together with the analysis conducted in Section III.G, this will provide an approximation of project contribution to the needed improvements. This estimate is prepared for discussion purposes with the local jurisdiction and with neighboring jurisdictions and Caltrans. It does not imply any legal responsibility or formula for contributions to improvements. If an improvement is identified as necessary to bring a deficiency into conformance with the LOS standard, but physical or environmental constraints make the improvement impractical, an equivalent contribution should be considered to improve the LOS elsewhere on the system or another location providing direct relief. F. Relationship to other elements While the measures required to address air quality problems are not required for the TIA Report, they may

be required as part of a CEQA review. The TIA Report may be integrated with environmental documents prepared for CEQA requirements. This is at the discretion of the local jurisdiction.

V. Conclusions and recommendations

Summary of proposed improvements and costs

Provide a summary of the deficiencies, proposed improvements and the costs of the improvements. A cost estimate for the proposed improvements must be included. Generalized unit costs will be available from either Caltrans or the local jurisdiction. The source of the unit cost estimates used must be specified in the TIA Report.

Other recommendations

List any other recommendations that should be brought to the attention of the local jurisdiction, the CMA, or Caltrans. This may include anticipated problems beyond the forecast year or on portions of the network not analyzed.

Summary List of Typical Figures and Tables to Be Included in a TIA Report:

- Project location and 5-mile limit study area (map)
- Project size by land use (table)
- Trips generated by land use for AM and PM weekday peak-hours of adjacent street traffic and for daily traffic inbound and outbound (table) and other applicable peak-hours
- List of other planned transportation improvements affecting the project
- Existing intersection and link volumes and levels of service (map)
- Distribution and assignment of project trips (map)
- Forecast traffic without project and with project for applicable peak-hours (map or table)
- LOS without project and with project (map or table) • Improvements required to address project opening day and forecast year scenario effects (map and/or table)
- Ratio of project traffic to new traffic (new traffic means the difference between existing and forecast) on analyzed links or intersections (map or table) • Improvement costs by jurisdiction and for Caltrans roadways

Summary of Analysis Assumptions for the TIA:

LOS Analysis Procedures and Assumptions

Intersections

- Current HCM operational analysis.
- Optimized signal timing/phasing for future signal analysis, unless assumed to be in a coordinated system, in which case estimated actual cycle length is used. The maximum cycle length for a single signalized intersection or system should be 130 seconds.
- 10 second minimum phase time, including change interval.

- Average arrivals, unless a coordinated signal system dictates otherwise. • Ideal lane width (12 feet).
- "Required" solution if analysis by Webster.
- Exclusive right turn lane is assumed to exist if pavement is wide enough to permit a separate right turn, even if it is not striped. (Minimum 20' from curb line to lane stripe).
- 2 second lost time/phase.
- A full saturation flow rate can be assumed for an extra lane provided on the upstream of the intersection only if this lane also extends at least 600 feet downstream of the intersection (or to the next downstream intersection).
- PHF = 0.95 for future analysis.
- The lane utilization factor may also be set at 1.00 when the v/c ratio for the lane group approaches 1.0, as lanes tend to be more equally utilized in such situations.
- For light duty trucks (such as service vehicles, buses, RV's and dual rear wheels) use a PCE of 1.5. For medium duty trucks with 3 axles use a PCE of 2.0. For heavy duty trucks with 4 axles, use a PCE of 3.0.
- Industrial, warehousing and other Projects with high truck percentages should convert to PCE's before applying thresholds.
- When field saturation flow rates and any special intersection characteristics are not available, the following field adjusted saturation flow rates are recommended for analysis.

Existing and Opening Day Scenarios

- Exclusive thru: 1,800 vehicles per hour green per lane (vphgpl)
- Exclusive left: 1,700 vphgpl
- Exclusive right: 1,800 vphgpl
- Exclusive double left: 1,600 vphgpl • Exclusive triple left: 1,500 vphgpl or less

Future Scenarios

- Exclusive thru: 1,900 vphgpl • Exclusive left: 1,800 vphgpl
- Exclusive right: 1,900 vphgpl
- Exclusive double right: 1,800 vphgpl
- Exclusive double left: 1,700 vphgpl
- Exclusive triple left: 1,600 vphgpl or less
- Note: Existing field saturation flow rates should be used if they are available and any special traffic or geometric characteristics should also be taken into account if known to affect traffic flow.

Freeways

- Capacity of 2,200 vehicles/hour/lane (1,600/hr/lane/HOV)
- Use Caltrans truck percentages (includes trucks, buses and RV's)
- Peak-hour factor of 0.98 for congested areas and 0.95 for less congested areas

- Directional distribution of 55% and 45%, if using non-directional volumes from Caltrans volume book
- Design speed of 70 mph

Stop Controlled Intersections

- Current HCM for 2-way and 4-way stops

Project-Related Assumptions

- Use the latest ITE Trip Generation handbook for mixed use internal trip percentages. Higher percentages must be fully justified.
- Pass by trips - Retail uses and fast food restaurants only
- Use ITE procedures to estimate percentage
- For analysis at entry points into site, driveway volume is not reduced (i.e., trip generation rate is still the same). Rather, trips are redistributed based on the assumed prevalent directions of pass-by trips (see recommended ITE procedure).
    - Reductions for transit or TDM are a maximum of 10% unless higher can be justified. Other
    - If a new traffic generating development project (other than a single family residential unit) within a federally designated urbanized area abuts a state highway or abuts a highway that intersects a State highway within 500 feet of that intersection, the local jurisdiction in which the development occurs must notify Caltrans and the CMA.
    - The TIA procedures will be reviewed biannually. Forward comments to the CMA.
    - Industrial warehouse and truck projects may distribute only truck trips by hand. (Employee trip distribution shall be modeled.)
    - Intersections will be considered deficient (LOS "F") if the critical v/c ratio equals or exceeds 1.0, even if the LOS defined by the delay value is above the defined LOS standard.
    - All the computer-generated traffic forecasts need to be refined for use in TIA reports to provide the best estimate of future volumes possible. Traffic forecasts should be post processed by using "B" turns software available through SCAG or another approved methodology. However, the post processing of turning movements is restricted to local models only.

CEQA Assessment - VMT Analysis

A key element of SB 743, signed in 2013, is the elimination of automobile delay and LOS as the sole basis of determining CEQA impacts. The most recent CEQA guidelines, released in December 2018, recommend VMT as the most appropriate measure of project transportation impacts. However, SB 743 does not prevent a city or county from continuing to analyze delay or LOS as part of other plans (i.e., the General Plan), studies, or ongoing network monitoring.

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 Engineering Services Department and would apply to projects that have the potential to increase the average VMT per service population (e.g., population plus employment) compared to the City boundary. Normalizing VMT per service population essentially provides a transportation efficiency metric that the analysis is based on. Using this efficiency metric allows the user to compare the project to the remainder of the City for purposes of identifying transportation impacts.

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 and the project needs only to satisfy one of the potential screening steps:

Step 1: Transit Priority Area (TPA) Screening

Projects located within a TPA[1] 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;

[1] 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.

2. Includes more parking for use by residents, customers, or employees of the project than required by the City (if the City requires the project to supply parking);
3. Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
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, per worker, or per service population that is similar to the existing land uses in the low VMT area. A low VMT area is defined as an individual traffic analysis zone (TAZ) where total daily Origin/Destination VMT per service population is lower than the City average total daily Origin/Destination VMT per service population.

To identify if the project is in a low VMT-generating area, the analyst may review the SBCTA 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 traffic analysis zone (TAZ[2]) and use professional judgement to determine that there is nothing unique about the project that would otherwise be mis-represented utilizing the data from the travel demand model.

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

https://devapps.fehrandpeers.com/sbctavmt/

Alternative data sources can be reviewed to further refine low-VMT areas, such as Streetlight's commercially available VMT data (e.g. big data). This data source could also be reviewed to determine if it is in a low VMT area instead of the SBCTA screening tool data.

For low VMT screening to be satisfied, the analyst mush verify that the project land uses would not alter the existing built environment in such a way as to increase the rate or length of vehicle trips (e.g., the proposed project is consistent with existing land use in the area, the project would be expected to contribute VMT consistent with existing land use in the area, and the project would not significantly alter travel patterns in the area).

Step 3: Project Type Screening

[2] TAZs are geographic polygons similar to Census block groups used to represent areas of homogenous travel behavior. Service population is population plus employment. Used with VMT, it provides a normalized standard unit for comparison purposes while accounting for the population and/or employment in a given area.

Local serving retail buildings 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 may, at the discretion of the City, be presumed to have a less than significant impact as their uses are often local serving in nature:

- Local parks
- Day care centers
- Local-serving retail uses less than 50,000 square feet, including:
    - Gas stations
    - Banks
    - Restaurants
    - Shopping Center
- Student housing projects on or adjacent to college campuses
- Local-serving assembly uses (places of worship, community organizations)
- Community institutions (Public libraries, fire stations, local government)
- Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS
- Hotels (non-destination or resort; no banquet or special event space)
- Affordable or supportive housing[3]
- Assisted living facilities
- Senior housing (as defined by HUD)
- Projects generating less than 250 daily vehicle trips[4]
    - This generally corresponds to the following "typical" development potentials:
        - 26 single family housing units
        - 34 multi-family, condominiums, or townhouse housing units
        - 25,000 sq. ft. of office
        - 50,000 sq. ft. of light industrial[5]
        - 143,000 sq. ft. of warehousing[5]
        - 178,000 sq. ft. of high cube transload and short-term storage warehouse[5]

[3] The project must provide 100% of residential units as affordable or supportive housing

[4] CITY TO PROVIDE DISCUSSION ON REASONING FOR THIS SCREENING

[5] 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.

Any project that uses the designation of "local-serving" will be required to demonstrate that it's users (employees, customers, visitors) would be existing within the community. As such, the project would not generate new "demand" for the project land uses, but the land use meets existing demand that would shorten the distance that residents, employees, customers, or visitors would otherwise travel.

VMT Assessment for Non-Screened Development

Projects not screened through the steps above or exempt under CEQA will be required to complete a VMT analysis and forecasting through the SBTAM model to determine if they have a significant VMT impact. This analysis is to 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 SBCTA.

- 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 service population (population plus employment). Total VMT (by speed bin) is needed as

an input for air quality, greenhouse gas (GHG), and energy impact analysis while total VMT per service population is recommended for transportation impact analysis[5].

Both "plus project" scenarios noted above will summarize two types of VMT: (1) project generated VMT per service population 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[6] looking at Citywide VMT per service population or a sub-regional VMT per service population and comparing it to the no project condition.

The analyst should clearly document the VMT methods used for the project-generated VMT and the project effect on VMT.

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 sub-regional boundary (such as a City limit or County line) and extracting the total link-level VMT for both the no project and with project condition.

In some cases, it may be appropriate to extract the Project-generated VMT using the production-attraction trip matrix. This may be appropriate when a project is entirely composed of retail or office uses, and there is a need to isolate the home-based-work (HBW) VMT for the purposes of isolating commute VMT. The City should evaluate the appropriate methodology based on the project land use types and context.

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

CEQA VMT Impact Thresholds

The City of Upland has selected a threshold based on the baseline VMT performance in the City.

VMT Impacts

An example of how VMT thresholds would be applied to determine potential VMT impacts is provided below.

[7] The VMT produced for the air quality, greenhouse gas (GHG), and energy impact analysis should use the same methodology (origin/destination) as the transportation impact analysis. However, the VMT presented in the transportation chapter will be presented as total VMT per service population, while the VMT presented in the other chapter will be as total VMT by speed bin.

[6] Network-based VMT is also referred to as boundary method VMT. For most projects, boundary method for the City should be adequate. For projects located near the City limit, an alternative boundary should be considered that captures the true effect the project has on local traffic. This could be determined using average trip length to/from the site or other approach to completely capture changes in VMT.

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

1. The baseline project-generated VMT per service population exceeds the City of Upland General Plan Buildout VMT per service population, or
2. The cumulative project-generated VMT per service population exceeds the City of Upland General Plan Buildout VMT per service population.

The project's effect on VMT would be considered significant if it resulted in either of the following conditions:

1. The cumulative link-level boundary VMT per service population within the City of Upland[7] increases 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

As part of the SBCTA Implementation Study, key TDM measures that are appropriate to the region were identified.

Measures appropriate for most of the SBCTA region are summarized in Attachment B of the TDM Strategies Evaluation Memorandum and available from SBCTA. It should be noted that the availability, applicability, and effectiveness of VMT mitigation measures is evolving and this memorandum may be out of date. Evaluation of VMT reductions should be evaluated using state-of-the-practice methodologies recognizing that many of the TDM strategies are dependent on

[7] Please note, that for most projects establishing a boundary of the City limits should be sufficient. However, for larger projects or projects located near the City limit, a larger boundary should be applied to ensure that the true project effect is not truncated. Typically, doubling the average trip length to/from the site could establish an appropriate boundary if the City limit is not appropriate.

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

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 shall 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.

Transportation Impact Analysis Format

The recommended TIA format including both LOS and VMT analysis is as follows:

1. Executive Summary
    a. Table summarizing significant impacts and mitigation measures
    b. Table summarizing LOS deficiencies and proposed improvements
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, LOS Thresholds and CEQA Significant Impact Thresholds
4. Existing Conditions
    a. Existing roadway network
    b. Existing traffic control and intersection geometrics (Exhibit)
    c. Existing traffic volumes – AM and PM peak hour and ADT (Exhibit)
    d. Existing level of service (LOS) at intersections (Table)
    e. Existing bicycle facilities (Exhibit)
    f. Existing transit facilities (Exhibit)
    g. Existing pedestrian facilities
5. Project Traffic
    a. Trip generation (Table)
    b. Trip distribution and assignment (Exhibit)
    c. Project peak hour (or other required hours) 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 at intersections
    b. Proposed improvements at roadway segments
    c. Recommended Improvements categorized by whether they are included in fee plan or not. (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

Detailed VMT Forecasting Information

Most trip-based models generate daily person trip-ends for each TAZ across various trip purposes (home-based-work, home-based-other, and non-home-based, 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.

To calculate VMT:

- 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[8] 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.

[8] IX/XI trips refer to trips that start inside the model boundary and end outside of it (IX), and trips that start outside the model boundary and end inside it (XI).