TRANSPORTATION IMPACT STUDY GUIDELINES

Date: July 9, 2019

Subject: Transportation Impact Study Guidelines

Senate Bill 743 (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 has 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 as well. Given the timing of this implementation with the County General Plan, it is prudent to address VMT and develop draft significance criteria to evaluate the General Plan related to VMT.

The County has identified that vehicle level of service (LOS) is still of value to the residents of San Bernardino County. As such, the General Plan includes policies that address LOS and identify LOS standards for which County infrastructure will strive to maintain. Therefore, County projects will also be required to complete a transportation impact study (TIS), in addition to VMT assessment, to demonstrate consistency with the General Plan. We recognize that the San Bernardino County Transportation Analysis Model (SBTAM) is currently the most appropriate travel demand model to use in San Bernardino County and our recommended methodologies reflect that. However, the recommended methodologies in this memorandum will continue to be applicable even if other traffic models supersede SBTAM in the future.

As such, the purpose of this memorandum is to provide recommendations related to VMT assessment (both thresholds of significance and methodology for identifying VMT related

impacts) and to refine the County's existing TIS guidelines to reflect state of the practice methodologies for identifying project impacts.

Finally, it should be noted that the County should update these guidelines on an as needed basis to reflect changes in CEQA requirements, new methodology development, or refinement of process moving forward. As such, the County should continually review these guidelines for applicability and consultants should contact the County to ensure that they are applying the most recent guidelines for project impact assessment.

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

1. Introduction
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1. INTRODUCTION

The purpose of Transportation Impact Study (TIS) Guidelines is to provide a general guide in assessing the potential transportation impacts of proposed development projects, General Plan Amendments and changes in zoning in the County of San Bernardino. This memorandum presents the recommended format and methodology that should generally be utilized in the preparation of traffic studies. These recommendations are based on the County's most recent TIS Guidelines with updates provided to recommend state of the practice methodologies, address recent California Environmental Quality Act (CEQA) legislation such as Senate Bill 743 (SB 743), and provide consistency for future transportation studies in the County.

These recommendations are general guidelines for the preparation of a TIS Report. The Department of Public Works should reserve the right to modify the TIS requirements based on the unique characteristics of a particular project.

All TIS's shall be prepared by a registered Traffic Engineer (State of California) or a registered Civil Engineer with experience in traffic. The TIS must contain a Title Page that includes, at a minimum, the Tract or Parcel number of the project, the applicant's name and address and the Engineer's name, Engineer's signature, address, phone number and stamp.

To avoid unnecessary delays or revisions and to stream line the TIS preparation and review process, the County should require that the applicant submit and have approved, by the Department of Public Works Traffic Division, a scoping form prior to the preparation and submittal of a draft TIS. A version of this document in Word format is attached to this memo.

1.1 CEQA CHANGES

Since the last TIS Guidelines update, SB 743 was signed into law. A key element of this law is the elimination or deemphasizing 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 can 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. Further, SB 743 requires the Governor's Office of Planning and Research (OPR) to update the California Environmental Quality Act (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 recommends Vehicle Miles Traveled (VMT) as the most appropriate measure of project transportation impacts. 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, congestion mitigation, or ongoing network monitoring; but these metrics may no longer constitute the sole basis for CEQA impacts.

In recognition of SB 743 and OPR's VMT recommendations, the recommendations in this memorandum include VMT thresholds and mitigation to ensure consistency with CEQA Guidelines. However, it should be noted that these recommendations are in advance of the County's General Plan Update, which will also include LOS standards since automobile level of service continues to be of importance to the County's unincorporated communities. Therefore, these TIS Guidelines also contain LOS analyses and threshold recommendations to maintain consistency with the General Plan.

2. NEED FOR TRANSPORTATION IMPACT STUDY

In order to ensure that projects are consistent with the Countywide General Plan, roadway facilities operate at an acceptable level of service, and region wide VMT is reduced, the County should require a study for any development if there are concerns over safety or operational issues such as congestion, VMT, etc. This can include development projects, Specific and Area Plans, or requests by an applicant for General Plan Amendments. Our recommendations, consistent with the most recent County TIS Guidelines, are provided below.

First, prior to the applicant filing an application with Land Use Services Department, the Traffic Division should determine both whether a TIS is required and what type of TIS should be prepared.

The requirement to prepare a TIS should be based upon, but not limited to, one or more of the following criteria:

- If a project generates 100 or more trips without consideration of pass-by trips during any peak hour.
- If a project is located within 300 feet of
    - The intersection of two streets designated as Collector or higher in the County's General Plan or the Department's Master Plan **or**
    - An impacted intersection as determined by the Traffic Division.
- If this project creates safety or operational concerns.
- The project has the potential to generate VMT that could result in a transportation impact as noted in the significance criteria presented later in this memorandum.
- If a project generates less than 100 trips without consideration of pass-by trips during any peak hour, a study maybe required if there are special concerns.

The Traffic Division should also reserve the right to require an applicant to prepare additional traffic analysis based on the project location, configuration, unique aspects of the project, proximity to major roadways, interchanges or intersections, evaluating corner site distance at the driveways or other requirements as determined by the Traffic Division, including after the scoping agreement is approved.

2.1 TYPES OF TRANSPORTATION IMPACT STUDIES

The type of study used should depend on the location of the project, the amount of project trips generated, the estimated VMT and whether the project falls within a fee plan area. As noted

previously, Traffic Division should determine the type of study to be submitted by the applicant. There are two types of TIS that can be requested by the Department of Public Works:

1. **Transportation Impact Study:** This type is required when thresholds are met and conducted based on these recommendations. Since these recommendations are in compliance with SBCTA guidelines, a TIS required by the County may be used to meet requirements for a TIS under the SBCTA Congestion Management Program.
2. **Letter Report:** A letter to address the significant impacts of the project in the immediate area. This type of report is primarily intended for specific concerns or small projects and thus limited to special situations. Letter reports may be sufficient when documenting potential VMT impacts and recommending mitigation measures to reduce VMT or when addressing a limited number of study locations.

2.2 COORDINATION WITH THE DEPARTMENT OF PUBLIC WORKS

Prior to filing an application with Land Use Services, the applicant should obtain a scoping form from Land Use Services or the Traffic Division and submit the completed form to Department of Public Works at Land Use Office or Traffic Division. Traffic Division can then make a determination regarding the need for and type of TIS.

If a TIS is needed, the applicant shall retain the services of a qualified registered Traffic or a registered Civil Engineer with experience in traffic engineering and initiate the process of finalizing a scoping agreement that will govern the conduct of the TIS. Studies submitted for review without an approved scoping agreement could be subject to significant revisions and could increase the cost for review that will be charged to the applicant by the Department. Additionally, the scoping agreement is an initial agreed-upon scope between the County and the engineer and the scope may need to be amended during the process based on potential changes to the project, input received during the project, or other items that may necessitate the need to expand or contract the scope of the study.

The TIS should be completed and submitted at the time an application is filed with Land Use Services. The applicant should obtain the approval of the submitted TIS prior to the approval of the proposed project.

3. LEVEL OF SERVICE ASSESSMENT FOR GENERAL PLAN CONSISTENCY

3.1 SCOPE OF TRANSPORTATION IMPACT STUDY

The locations and scenarios analyzed in a transportation impact study should insure that potential impacts are discussed and mitigated across a variety of possible facilities and horizon years. Our recommendations for study area and scenarios are given below.

3.1.2 Study Area Boundaries for LOS assessment

The area to be studied should include all intersections, which the proposed project will add 50 or more trips during any peak hour and roadway segments adjacent to the project if directed by the County. All key study facilities within this study area should be analyzed to identify impacts to capacity and Level of Service (LOS). The study facilities should be listed in the scoping form for review and approval by the Traffic Division.

At a minimum, the following subject/locations should be studied:

a) Site access driveways
b) On-site circulation
c) Roadway(s) adjacent to the project (if requested by County staff)
d) Intersections in the immediate vicinity of the project
e) Pedestrian and bicycle circulation
f) Consistency with County Plans and Policies
g) Transit (bus and light commuter rail) accessibility to project site
h) Any intersection on which the project will add 50 or more peak hour project trips

3.1.2 Study Scenarios for LOS Assessment

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

a) Existing Conditions
b) Background Conditions – Defined as Opening Year Conditions with ambient growth and traffic from approved projects
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 SBTAM travel demand forecasting model) plus traffic approved and pending projects in the area
e) Cumulative Plus Project Conditions – Defined as Cumulative No Project Conditions plus traffic from the proposed project

The purpose of Background Condition analyses is to document the potential near-term impacts of the Project on the County's transportation facilities. However, if the if the project opening year is more than five years beyond the Existing Conditions assessment, then an Existing Plus Project scenario should be analyzed as an additional scenario.

Phased projects could be evaluated in three ways. First, the analyst can identify which phase of a project triggers an impact 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 County should be consulted to identify which approach is most appropriate for a proposed project if phasing is proposed recognizing the County's desire to ensure that infrastructure is delivered concurrent with proposed development when needed.

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

3.2. DATA COLLECTION, PROJECT TRIP, 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 transportation impact studies and reflect current state of the practice.

3.2.1 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 (1) year old without prior Traffic Division approval.
- Traffic data should not be collected on weeks that include a holiday and non-school session time periods unless approved by the Traffic Division.
- Traffic data should not be collected between Thanksgiving and the first week of the new year without prior Traffic Division approval.
- Traffic counts should be conducted on Tuesdays, Wednesdays, or Thursdays.

Unless directed otherwise by the Traffic Division, counts should be collected during the following time frames:

- 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 – As directed by the Traffic Division
- Other peak hours, off-peak, weekend or special event, may also be required depending on the project location and type of use

Count data should be included in the study appendices.

3.2.2 Trip Generation

The latest edition of the Institute of Transportation Engineers' (ITE) Trip Generation should be used for trip generation forecasts. Local data (if available) is preferred, but should be approved by

the County prior to application. Trip generation for high truck generating uses such as high cube warehouses, logistics space, etc. shall be determined with County input on a case-by-case basis. The proposed trip generation should be listed in the scoping form for review and approval by the Traffic Division.

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 is the state of the practice and should be approved by the Traffic Division 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 TIS.

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.

3.2.3 Trip Distribution

A graphical representation of the proposed project trip distribution should be based on 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 knowledge of local and regional traffic circulation; and/or a select zone assignment from SBTAM. A preliminary trip distribution pattern should be submitted in the scoping form for review and approval by the Traffic Division.

The trip distribution may be further refined, after consultation with the Traffic Division, 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 Traffic Division

3.3 TRIP FORECASTS

For Cumulative Conditions, SBTAM should be used to develop future traffic volume forecasts. For all projects, the applicant should include cumulative development projects in the study. A list of proposed and approved developments can be obtained from the County's Land Use Services

Planning Division. For proposed projects that are in close proximity to incorporated cities, those cities should also be contacted to obtain a list of proposed and approved development projects in those jurisdictions. At a minimum, future projects located within two miles of the study area should be included. Projects outside that radius should be included if the traffic generated by that project can reasonably be expected to impact a study intersection and/or road segment.

3.4 INTERSECTION ANALYSIS

3.4.1 Analysis Methodology

Intersection analyses should be performed using the latest version of the Transportation Research Board, Highway Capacity Manual (the HCM 6th Edition) is the latest version at the time this memorandum was written methodology which reflects current state of the practice. The HCM methodology assigns an LOS grade to an intersection based on estimated delay at that intersection.

Level of service analysis based on the current Highway Capacity Manual shall be used in the analysis with the following assumptions:

- Existing signal timing for Existing Conditions; Optimized signal timing for non-coordinated intersections for all other analysis scenarios
- For coordinated intersections, the existing coordination timing plan should be obtained from the responsible agency.
- Four (4) seconds of lost time per critical phase should be assumed if signal timing data is not available
- Field-collected heavy vehicle factor if available; otherwise, 2% shall be assumed
- Field-collected peak hour factor (PHF) for existing and background conditions analyses; for cumulative assessment, 0.95 shall be assumed

Saturation flow rates should be used based on actual field measurements of particular intersections if possible and with approval from the Traffic Division. Otherwise, the following saturation flow rates can be used, consistent with the SBCTA CMP:

- For Existing and Background scenarios:
    - 1,800 vehicles per hour green per lane (vphgpl) for exclusive thru and exclusive right turn lanes
    - 1,700 vphgpl for exclusive left turn lanes
    - 1,600 vphgpl for exclusive dual left turn lanes
    - 1,500 vphgpl for exclusive triple left turn lanes

- For the Cumulative and General Plan Build-Out scenarios:
    - 1,900 vphgpl for exclusive thru and exclusive right turn lanes
    - 1,800 vphgpl for exclusive double right turn lanes
    - 1,800 vphgpl for exclusive left turn lanes
    - 1,700 vphgpl for exclusive dual left turn lanes
    - 1,600 vphgpl for exclusive triple left turn lanes

3.4.2 Signalized Intersection General Plan Consistency Requirements

Consistent with the acceptable LOS for the Desert, Valley, and Mountain regions as described in the General Plan[1], the County should consider the following signalized intersection criteria for application in a traffic study. Please note that this will be completed to demonstrate General Plan Consistency. Specific CEQA thresholds, which are based on VMT requirements, are described later in this memorandum.

- Any signalized study intersection in the Valley or Mountain regions that is operating at an acceptable LOS D or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS E or F shall identify improvements to improve operations to LOS D or better.
- Any signalized study intersection in the Desert region that is operating at an LOS C or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS D, E, or F shall identify improvements to improve operations to LOS C.
- Any signalized study intersection in the Valley or Mountain regions that is operating at LOS E or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.
- Any signalized study intersection in the Desert region that is operating at LOS D, E, or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.

3.4.3 Unsignalized Intersection General Plan Consistency Requirements

Consistent with the acceptable LOS for the Desert, Valley, and Mountain regions as described in the current General Plan, the County should consider the following unsignalized intersection criteria when identifying operational deficiencies:

[1] These standards are subject to change; please review the General Plan to ensure the most recent standards are utilized.

An operational improvement would be required if the study determines that either section a) or both sections b) and c) occur:

a) The addition of project related traffic causes the intersection to degrade from an LOS D or better to a LOS E or worse in the Valley and Mountain regions or from an LOS C or better to an LOS D or worse in the Desert region.

OR

b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS E or F in the Valley and Mountain regions or at an LOS D, E, or F in the Desert region (per Section 10.5.2 b))

AND

c) One or both of the following conditions are met:
   1) The project adds ten (10) or more trips to any minor street approach
   2) The intersection meets the peak hour traffic signal warrant after the addition of project traffic (per Section 10.5.2 c)).

If the conditions above are satisfied, improvements should be identified that achieve the following:

- In the Valley and Mountain regions, improvements should be identified that would achieve LOS D or better for case a) above or to pre-project LOS and delay for case b) above.
- In the Desert region, improvements should be identified that would achieve LOS C or better for case a) above or to pre-project LOS and delay for case b) above

3.5 ROADWAY SEGMENT ANALYSIS

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 assessment could be appropriate and may be requested by the County Transportation Department. The following sections describe the appropriate methodology for evaluating roadway segments in those situations where required by the department.

3.5.1 Analysis Methodology

Daily roadway segment analysis should be performed using thresholds from the latest version of the Transportation Research Board, Highway Capacity Manual 6th Edition methodology which

reflects current state of the practice. The HCM methodology assigns an LOS grade to a roadway segment based on whether the daily volumes surpass given thresholds.

3.5.2 General Plan Consistency Requirements

Consistent with the acceptable LOS for the Desert, Valley, and Mountain regions as described in the current General Plan, the County should consider the following roadway segment thresholds and improvement requirements:

- Any study roadway segment in the Valley or Mountain regions that is operating at an 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 should identify improvements to achieve LOS D.
- Any study roadway segment in the Desert region that is operating at an LOS C or better without project traffic in which the addition of project traffic causes the segment to degrade to an LOS D, E, or F 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 improvements to add capacity to the segment.

3.6 SITE ACCESS, SAFETY, AND OTHER ANALYSES

A project's TIS should analyze site access and safety around the project and on adjacent streets. The recommended analyses, based on the previous TIS Guidelines, are given below.

3.6.1 Site Access Analysis

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 to allow vehicles to enter the project area without causing subsequent vehicles to back out onto the County street system. A turn around should be provided at all gated entrances.

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 so as to maintain a reasonable distance from an adjacent intersection and/or driveway. Whenever possible, driveways shall 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

g) Bicycle accessibility

h) Accessibility from adjacent transit stops

3.7 SAFETY AND OPERATION IMPROVEMENT ANALYSIS

The TIS should analyze opening year roadway conditions to determine if safety and/or operational improvements are necessary due to an increase in traffic from the project or cumulative projects. The following improvements should be analyzed:

a) Addition of through lane(s), right turn lane(s) and left turn lane(s)

b) Left and/or right turn lane pocket length (queue length)

c) Bus Turnouts – Coordinate potential bus top locations on arterial streets adjacent to the proposed project site with local transit agencies. Review appropriateness of bus turnouts for each of the identified bus stop locations.

d) Intersection Geometrics – Projects that generate heavy vehicle traffic should also review intersections along the routes to/from the site to determine that the intersections have been designed appropriately to accommodate the addition of heavy vehicles (e.g. curb returns and geometrics can accommodate turning trucks).

e) Parking restrictions on adjacent streets

f) Free Right Turn Lane – Free right turn lane should be considered when right turn volumes exceed 300 vehicles per hour.

g) Traffic Signal Coordination – For new or modified traffic signals, the Traffic Division should consider requiring signal coordination timing plans and, under certain conditions, traffic simulation based on the latest Highway Capacity Manual. The traffic simulation and coordination timing plan should include signalized intersections as identified by the Traffic Division. A copy of any software program files to develop these plans should be available to the Traffic Division for review.

h) Bicycle Circulation – Identify and implement bike lane facilities adjacent to the project site in accordance with the County's Bicycle Master Plan.

3.8 TRAFFIC SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis should be performed for all unsignalized study intersections for the project opening year (if applicable) and build-out year conditions. 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 Traffic Division.

3.9 IMPROVEMENTS FOR TRANSPORTATION IMPACTS

Several options exist to improve identified impacts and are dependent on the specific identified impact. Potential measures are noted below.

As part of the final acceptance of a transportation impact study, the Traffic Division should review and approve any required improvements and/or fair share contributions necessary to mitigate the transportation related impacts from the development. These should be included as part of the conditions of approval and should be in addition to any improvements required by any other Divisions of Public Works and/or Departments. Any transportation improvements based on a transportation study will be in addition to any other fees related to the existing Transportation Facilities Plans or any fees required by other Divisions of Public Works and/or Departments.

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

3.9.1 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). Improvements could consist of signal timing improvements, lane restriping, or new lanes to study facilities.

Cumulative impacts 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, payment of those fees would constitute an appropriate contribution.

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

3.10 COUNTY FEE PLANS

The study should state if the proposed project falls within any of the adopted fee plans in the County's unincorporated areas. Further information can be found on the following website: http://www.sbcounty.gov/dpw/transportation/transportation_planning.asp.

3.11 FAIR SHARE CONTRIBUTIONS

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:

$$\text{Fair share} = \frac{\text{project trips}}{\text{project trips} + \text{future development trips}} \text{ X } 100\%$$

Trips noted above should correspond to the peak hour where the impact occurs for intersection assessment or daily trips for roadway segment impacts. If a project has impacts 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.

4. CEQA ASSESSMENT - VMT ANALYSIS

A key element of SB 743, signed in 2013, is the elimination of automobile delay and level of service 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' Transportation Impact Studies.

4.1 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 increase the average VMT per person or employee. Normalizing to VMT per person/employee 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 unincorporated area for purposes of identifying transportation impacts.

Please note that SBCTA is leading a SB 743 Implementation Study which will further refine the methodology identified in this section and will create tools to assist in VMT screening. The analyst and County should monitor those efforts for applicability for VMT assessment for subsequent projects and update this section of the guidance accordingly as new information and tools become available for use in the County.

Projects which serve the local community and have the potential to reduce VMT should not be required to complete a VMT assessment. These projects are noted below:

- K-12 schools
- Local-serving retail less than 50,000 sq. ft.
- Local parks
- Day care centers
- Local serving gas stations
- Local serving banks
- 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[2]
    - 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[3]
        - 63,000 sq. ft. of warehousing[3]
        - 79,000 sq. ft. of high cube transload and short-term storage warehouse[3]
        - 12 hotel rooms
- Projects located within a Transit Priority Area (TPA) as determined by the most recent SCAG RTP/SCS (map of HQTAs can be reviewed on SCAG's website currently located here and will further be refined through SBCTA's efforts: http://gisdata.scag.ca.gov/Pages/GISStaticMaps.aspx but should be verified by the analyst
- Projects located within a low VMT generating area as determined by the analyst (e.g. development in efficient areas of the County will reduce VMT per person/employee and is beneficial to the region)

For all remaining projects, VMT should be estimated by multiplying average trip length by the trip generation for the project. It is recommended that average trip length information be obtained for each trip purpose from the SBTAM model. We also recommend use trip generation rates from the SBTAM model. Using SBTAM to determine both trip generation and trip lengths allows the user to use an identical methodology when comparing project VMT per person/employee to the regional VMT per person/employee.

Consistent with the OPR guidelines, the following specific VMT components will be utilized to complete a VMT impact assessment:

- **Residential Projects** - VMT/Person for all home-based trips (productions)

[2] 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.

[3] 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.

- **Employment Projects** – VMT/Employee for only the home-based-work trip purpose (attractions) and would apply to office, industrial, governmental, and institutional projects
- **Regional Retail** – VMT/(Employee + Visitors) for the Non-Home Based, Home-Based Work, and Home-Based Other *attraction* trips, which represent trips taken by both workers and visitors.
- **University (with on-campus housing)** – VMT/(Person + Employee + Student) for the Home-Based Work, Home-Based Other, and Non-Home Base trip purposes.
- **Mixed-Use:** Since a mixed-use project consists of the different project types listed above, the recommended analysis consists of Home-Based Work, Home-Based Other, and Non-Home Based.

The impact criteria, described later in this section, require the project to compare the VMT per person/employee to the VMT per person/employee for the unincorporated County. The VMT for the unincorporated County should also be derived from SBTAM for comparison and impact analysis purposes. The unincorporated County VMT per person/employee must be estimated consistent with the environmental baseline for the project; which typically is consistent with the notice of preparation released for the project or when technical studies are initiated. Since SBTAM base year land use and transportation network will likely not match the environmental baseline for the project, the user should use linear interpolation between the base year and future year model projection horizons to estimate VMT per person/employee for the region.

In addition to evaluating the project VMT per person/employee, the user must also evaluate the cumulative effects of the project on VMT. To complete this cumulative analysis, the user must compare the unincorporated VMT per person/employee with the project to the VMT per person/employee that would occur consistent with the RTP/SCS projections (if the project is already consistent with eh RTP/SCS, then no cumulative assessment would be required). If a project is not consistent with the RTP/SCS, then the user has two options of how to add the project to the model and extract VMT information:

- Add the proposed land uses to the travel demand model, complete a full model run, and determine if VMT per person/employee increases or decreases compared to the RTP/SCS assumptions; or
- Hold the regional land use control totals constant and determine where development would not occur if the proposed project were to occur. In this example, an economist could be utilized to provide this information, a land use allocation tool could be applied to provide this information, or the user can review future growth within a five to ten-mile

radius of the project and proportionately decrease development in those TAZs to match the level of development proposed by the project.

Finally, for projects that have the potential to increase congestion along major corridors, a network-based VMT assessment should be completed under the cumulative year (with and without the project) and countywide network VMT shall be evaluated to determine if increased congestion caused by the project displaces regional through trips that would increase VMT relative to the RTP/SCS. Total VMT can be used for this assessment (if the future land use is consistent between the no project and with project scenarios) or VMT per person/employee can be used for the assessment if the land use control totals are not consistent.

4.2 CEQA VMT IMPACT THRESHOLD AND MITIGATION

4.2.1 Project VMT Impacts

A project should be considered to have a significant impact if the project VMT per person/employee is greater than 4% below the existing VMT per person for the unincorporated County.

4% below existing was identified as an appropriate threshold through an exercise completed by Fehr & Peers as part of the General Plan process. The process focused on development in the growth areas of the County (where major development is expected to occur) and utilized the California Air Pollution Control Officers Association (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures* (August 2010) to estimate the maximum feasible VMT mitigation that could be achieved through TDM. The TDM effort identified that the ***maximum*** achievable TDM reduction associated with development in the identified growth areas would be just over 4% for both residential projects and for commute trips associated with employment uses. Utilizing the maximum achievable TDM reduction as the threshold provides an achievable threshold for County development to consider when processing applications.

Once a significant impact is identified, the project's VMT per person/employee should be mitigated to 4% below the baseline VMT per person. Mitigation should consist of Transportation Demand Management (TDM) measures analyzed under a VMT-reduction methodology consistent with Chapter 7 of the California Air Pollution Control Officers Association (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures* (August 2010) and approved by the Traffic Division and Land Use Services Department (if applicable); or the project description should be reviewed and modified to promote reduced VMT.

4.2.2 Cumulative VMT Impacts

Cumulative impacts should be evaluated for consistency with the adopted RTP/SCS. For example, if a project is included in the RTP/SCS, the project's cumulative impacts shall be less-than-significant. However, if the project is inconsistent with the adopted RTP/SCS, then the analysis should evaluate the project's effect on VMT and determine if the unincorporated Countywide VMT increases or decreases with the project relative to the VMT generated by the RTP/SCS. A significant impact would occur if the project increases the regional VMT per person/employee compared to the RTP/SCS assumptions.

4.2.3 VMT Mitigation Measures

To mitigate VMT impacts, the applicant can consider several factors noted below:

- Revisit project design features and or land use to reduce project trips or reduce trip length
- Consider development in a more efficient area
- Look for other measures to reduce trip lengths or the number of trips generated through the use of transportation demand management (TDM) measures

If a regional program is available to reduce VMT, a fair share payment toward that program would be deemed acceptable.

As part of the threshold setting exercise the following TDM measures were identified as feasible and should be considered for development in the County. However, the CAPCOA guidelines should be followed to quantify the VMT reduction associated with each considered measure (in addition to the land use TDM measures that are already accounted for in the travel demand forecasting):

- LUT-6 Integrate affordable and below market rate housing: 0.04% - 1.20%
  Amount of affordable housing would be project-specific
- LUT-9 Improve Design of Development: 3.0% - 21.3%
- SDT-1 Provide pedestrian network improvements
  Applicable for subdivisions connecting to other development, in areas identified for growth in the Countywide Plan, unincorporated Valley region areas, or unincorporated spheres of influence
- SDT-2 Provide Traffic Calming Measures: 0.25% - 1%
  Applicable for subdivisions connecting to other development, in areas identified for growth in the Countywide Plan, unincorporated Valley region areas, or unincorporated spheres of influence

- TRT-4 Implement Subsidized or Discounted Transit Passes: 0% - 16%
  Applicable to development within 1/2 mile of a transit system. As such, it would be applicable in the Valley region (but less applicable in other areas).
- TRT-6 Encourage Telecommuting and Alternative Work Schedules: 0.2% - 4.5%
  Applicable to the County as the County is and will continue to partner with internet providers to increase coverage within the County to facilitate this application.
- TRT-10 Implement a School Pool Program: 7.2% - 15.8% reduction in school VMT
  Applicable for large developments (approximately 300 households or more).

5. CEQA ASSESSMENT - ACTIVE TRANSPORTATION AND PUBLIC TRANSIT ANALYSIS

The California Environmental Quality Act (CEQA) Guidelines set the following criteria for assessing significant impacts to non-automotive facilities:

- 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 TIS 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.

6. TRANSPORTATION IMPACT STUDY FORMAT

The recommended TIS format is as follows:

1. Executive Summary
    a. Table summarizing significant impacts and mitigation measures
2. Introduction
    a. Purpose of the TIS 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 phase opening
3. Methodology and Impact Thresholds
4. Existing Condition
    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 turning movements and ADT (Exhibit)
6. Existing Plus Project Analysis (if required)
    a. Peak turning movement and ADT (Exhibit)
    b. Intersection level of service (Table)
    c. Roadway segment level of service (Table)
    d. Identification of intersection and roadway segment impacts
7. Background Conditions (Opening Year) Analysis
    a. No Project analysis
        i. Committed (funded) roadway improvements
        ii. Pending and approved project trip generation (Table, if required)
        iii. Pending and approved project trip assignment and distribution (Exhibit, if required)

iv. Opening Year 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

8. Cumulative Year Analysis
a. No Project analysis
i. Committed (funded) roadway improvements
ii. Pending and approved project trip generation (Table, if required)
iii. Pending and approved project trip assignment and distribution (Table, if required)
iv. Cumulative Year 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

9. Traffic Signal Warrant Analysis
10. Site Access Analysis
11. Safety and Operation Improvement Analysis
12. Active Transportation and Public Transit Analysis
13. Improvements and Recommendations
a. Proposed improvements at impacted intersections
b. Proposed improvements at impacted 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)
14. Vehicle Miles Traveled (VMT) Analysis
a. Project VMT per person/employee
b. Project effect on VMT
c. Identification of VMT impacts
d. Proposed VMT Mitigation Measures

15. Appendix
    a. Approved scope of work
    b. Traffic counts
    c. Intersection analysis worksheets
    d. VMT and TDM mitigation calculations
    e. Signal warrant worksheets