

City of Orange Traffic Impact Analysis Guidelines

August 15, 2007

1. INTRODUCTION:

State and Federal laws require the correlation of Land Use Element building intensities in a General Plan with the Circulation Element capacity. A Traffic Impact Analysis (TIA) is required by the City of Orange so that the impact of land use proposals on the existing and future circulation system can be adequately assessed and to ensure that the California Environmental Qualities Act (CEQA) and Congestion Management Program laws and guidelines are met.

The following TIA requirements are intended for any person or entity who is proposing development in the City of Orange, and should be used in coordination with the City's Local CEQA Guidelines and Orange Municipal Code to guide the development review process.

2. WHEN IS A TIA REQUIRED:

An applicant seeking project approval will submit the proposed project to the Community Development Department (CDD) with a planning and land used approval application. CDD will transmit the application to Public Works Traffic Engineering for preliminary review, as part of its interdepartmental coordination process. After a preliminary review of the project by Traffic Engineering, the applicant will be notified by CDD in writing within 30 days of the application submittal date as to whether a TIA is required.

A Traffic Impact 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 on the Arterial Highway System which generate 1,600 Average Daily Trips (ADT).
- 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.

In cases where insufficient information is available to make a preliminary assessment of a proposal's traffic impacts, the City Traffic Engineer shall determine, at this discretion, whether a TIA will be required.

A Traffic Impact Analysis must be prepared under the direction of a registered traffic engineer or a registered civil engineer with documented experience in traffic engineering and transportation planning.

The TIA shall be submitted to the Traffic Engineering Division in a draft form. Comments relative to the analysis shall be provided by the City Traffic Engineer, or his designee, in writing to the project proponent and their engineer so that any necessary revisions can be made prior to final submittal. The TIA is not deemed complete or final until it incorporates all necessary revisions and is prepared to the City's satisfaction.

The use of a previously approved TIA for a project can be considered by the City Traffic Engineer if the land use assumptions, background conditions, and character of the traffic analyzed in the existing TIA are not significantly changed in a proposed project. The determination of the longevity of an existing TIA will be consistent with CEQA Guidelines Section 15162.

3. TIA CONTENT & FORMAT REQUIREMENTS:

Prior to the beginning of any study, the project proponent shall coordinate with staff from Community Development and Traffic Engineering. A tentative schedule for reviewing and processing the TIA will be developed. Initial discussions shall also include a conversation of any key issues along with the development scope and boundaries of the study area. The proponent will submit a detailed site plan at this meeting. City staff will provide input into the following specific areas of the analysis:

1. Defining the general study area boundaries.
2. Project access.
3. Approved development in the vicinity of the project for cumulative analysis.
4. Approved General Plan (build-out) traffic volumes.
5. Appropriate Trip Generation rates for the project.

The project proponent shall coordinate with the Traffic Engineering staff so that detailed and technical aspects of the analysis can be discussed prior to a formal submittal. Topics of discussion will include:

1. Trip distribution and assignment assumptions.
2. Intersections and roadway segments where capacity analysis will be required. As a minimum, intersections where the project will add 51 or more trips during either the AM or PM peak hours will need to be analyzed. This threshold may be reduced, at the discretion of the City Traffic Engineer, for intersections that are projected to or currently operate at Level of Service (LOS) "E" or "F".

3. Intersection Capacity Analysis assumptions.
4. Inclusion of a Transportation Demand Management Plan (TDM) to mitigate traffic impacts and promote the use of alternate modes or transportation.
5. Any specific issues that require special consideration such as pedestrian circulation, access, parking and on-site circulation.

The content and level of analysis necessary to evaluate a project will vary and are dependent on the scope of lane use proposal and location within the City.

All traffic studies will be organized and contain, as a minimum, the information provided in the following outline.

EXECUTIVE SUMMARY:

A clear concise summary of the study area, findings and proposed mitigation measure(s) is required in the Executive Summary.,

INTRODUCTION:

1. Site Location and Study Area Boundaries

Briefly describe the proposed development and the general geographical location of the project. Provide the study area limits mutually agreed upon by the developer, his/her engineer, and the City.

2. Existing Land Uses and Project Proposals

The existing site conditions, the proposed project and, if applicable, the previously proposed land use(s) associated with the site shall be identified. The specific land use proposed will be presented since a variety of uses and land use densities may be permitted under existing general plan or of zoning designations with varying degrees of impact.

3. Committed and Proposed Developments in the Vicinity of the Proposed Project

Information pertaining to projects that would contribute traffic to the project study area, including both approved developments and proposed developments where an application has been submitted, shall be identified. The TIA should include a brief description of these projects, and their traffic-related impacts. During its preliminary meetings with the applicant, City staff will identify the need to assess impacts associated with approved and proposed developments.

4. Existing and Proposed Roadways and Intersections

Identify and describe the roadways and intersections within the study area and the role each will play in providing circulation and access to the project. Number of lanes, driveways locations, ultimate right-of-way, intersection geometrics, bus stops, bike lanes, sidewalks and traffic controls shall be included.

To summarize the information presented in the introduction, a vicinity map depicting the project site, study boundaries, existing lane configurations, traffic controls and any additional features that are pertinent to the study shall be provided.

TRIP GENERATION:

Trip generation will be calculated using the Orange Traffic Analysis Model (OTAM) and/or ITE rates, as directed by City. In the event that the generation rates do not address proposed land use in sufficient detail, rates from other documented sources (i.e. SANDAG) may be used with prior approval from the City.

A table summarizing the types of lane use; the corresponding generation rates and land use units and the resulting a.m. peak, p.m. peak, and total daily trip ends generated by the project is required.

TRIP DISTRIBUTION/ASSIGNMENT:

Description of trip distribution and directional approach for vehicle trips to and from the site along with the specific roadways that will be utilized by site-generated traffic is required. The basic methodology and assumptions used to develop trip distribution and assignments must be clearly stated. The City's Traffic Engineering staff will have significant input into these areas. Trip distribution and assignment assumptions are required during the preliminary stages of the study and subject to approval of the City Traffic Engineer or designee prior to inclusion within the study report.

As part of the analysis, a graphic that shows project distribution by percentage and the direction of travel shall be included.

EXISTING & PROJECTED TRAFFIC VOLUMES:

All traffic volume information used to represent existing conditions shall be no more than two years old. Additionally, the raw data from sources other than the City, on which existing conditions are based, must be supplied in the traffic study appendix identifying the source. The following five analysis scenarios should be evaluated (at the discretion of the City Traffic Engineer in coordination with Community Development) and summarized in a single table and throughout the analysis using the following designations:

1. Existing Conditions:

Existing traffic conditions; data must have been collected within the previous 24-month period.

2. Existing Conditions + Approved and Pending Projects:

Existing traffic conditions plus ambient growth and traffic from all the development within the study area for which an application has been submitted (“pending projects”), or that have been approved but not yet constructed. This scenario represents project opening year “Without Project” scenario and corresponds to the No Project alternative for purposes of an Environmental Impact Report (EIR).

3. Existing Conditions + Approved and Pending Projects + Project:

Existing traffic conditions of existing, plus ambient growth and approved and pending developments, plus traffic generated by the proposed project. This scenario represents the project opening year “With Projects” scenario.

4. General Plan Development:

Build-out of City General Plan (Year 2030) combined with build-out of circulation system. OTAM Build-out projections will be used for this purpose. A General Plan build out analysis is generally required for any project that contributes traffic to an intersection projected to have unacceptable LOS, any project that requires a General Plan Amendment or otherwise proposes development that exceeds the land use intensity assumed for the General Plan, and/or at the discretion of the City Traffic Engineer.

5. General Plan Development + Project:

Cumulative traffic conditions of General Plan build-out plus proposed project.

For projects planned for construction more than two years beyond existing conditions, an ambient traffic growth factor shall be included to account for annual increases in background traffic (i.e. 1% per year). This factor will be determined by the City Traffic Engineer or designee.

Projects that are to be constructed in more than one phase will require interim year future analysis to address each phase of the development and its associated traffic impacts. The year(s) to be analyzed will coincide with the scheduled phasing and will be approved by the City Traffic Engineer or designee.

VOLUME/CAPACITY ANALYSIS:

Capacity analysis will be conducted at identified mid-block segments and intersections within the study area and at all proposed access points to the project. Intersection capacity calculations will be made using the Intersection Capacity Utilization (ICU) method unless the consultant conducting the traffic study and/or City Traffic Engineering or designee identify locations that can be better evaluated using the

Operational or Planning Analysis methodologies found in the latest editions of the Highway Capacity Manual (HCM). Pre-approval to use HCM shall be obtained in writing from the City Traffic Engineer or designee. Use of the HCM methodology, in addition to an ICU-type analysis, will be required at any study area intersection under the control of Caltrans.

A minimum clearance interval of .05 in conjunction with lane capacities of 1700 per hour of green time for through and turn lanes will be used for all volume/capacity calculations.

If the distance from the edge of the outside through lane is at least 19 feet and parking is prohibited during the peak period, right turning vehicles may be assumed to utilize this "unofficial" right turn lane. Otherwise, all right turn traffic shall be assigned to the outside through lane. If a right turn lane exists, right turn overlap may be assumed, if not prohibited at that location. However, the assumption of the number of vehicles turning right during the overlap phase cannot conflict with any other critical movement at that intersection. Any signal overlap assumptions must be clearly stated.

Pedestrian adjustments shall be performed on a case-by-case basis and assessed according to the procedures outlined in Chapter 16 of the latest version of the Highway Capacity Manual (HCM) for those intersection that have more than 100 pedestrians in the peak period.

Per the City's General Plan Circulation Element and Growth Management Element requirements, a volume/capacity ratio of 0.90 (Level of Service D) shall be the lowest acceptable Service Level at intersections following implementation of mitigation measures. Mitigation measures sufficient to bring intersections and roadway segments to the acceptable service levels must be identified. In order to maintain LOS "D" at intersections, arterial highway links should be maintained at LOS "C" or better.

When calculating future traffic conditions, vehicular volumes and level of service associated with existing condition and the various categories of projected volumes should be identified individually. Volume/capacity calculations that demonstrate the result of proposed improvements will be required for intersections where unsatisfactory levels of service are identified and mitigation measures are necessary.

The results of the various volume/capacity calculations should be summarized through the use of figures that graphically represent the roadways within the study area.

Justification for installation of new traffic signal(s), or other traffic control devices, shall be discussed in the TIA, and based on the warrants stated in the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) or California Supplement. All traffic signal warrant calculations shall be provided in the appendix of the traffic study.

Whenever new public streets, full access driveways, or private streets are proposed to intersect arterial streets, an evaluation of the intersection capacity, spacing, queuing and pocket lengths will be required.

SIGNIFICANT TRANSPORTATION IMPACT:

A transportation impact on an intersection shall be deemed “significant” and require mitigation under CEQA in accordance with the following table:

<u>Level of Service</u>	<u>Final V/C Ratio</u>	<u>Project-Related Increase In V/C</u>
E, F	>0.900	equal to or greater than 0.010

For purposes of this calculation, the “Final V/C Ratio” shall mean the future V/C ratio at an intersection considering impacts with Project, Ambient Growth and Approved and Pending Projects but without any proposed mitigation.

SITE ACCESS ANALYSIS:

The project’s impact to access points and on-site circulation will be analyzed. The analysis will, as appropriate, include the following:

- Number of access points proposed for the project site.
- Spacing between driveways and intersections.
- Potential signalization of driveways.
- On-site stacking distance. (Including uses with a Drive-thru.)
- Shared access.
- Turn conflicts/restrictions.
- Adequate sight distance.
- Driveway improvements.
- Pedestrian Connections.
- Any other operational characteristics (as identified by City staff).

If the proposed project is a residential or commercial use with privacy gates, the applicant shall provide a stacking analysis for review and approval. The adequacy of the interface with the arterial network will need to be demonstrated and necessary improvements to adjacent intersections may be required.

ON-SITE PARKING ANALYSIS:

A project provides adequate parking capacity if the project meets OMC parking code requirements. Parking studies are required to support deviations from parking code requirements or the use of reciprocal parking. The parking rates to be used are obtained from the City’s Community Development Department, and are based on the Orange Municipal Code (OMC) Chapter 17.34, “Off-Street Parking and Loading.” In cases where the code does not address parking rates for a specific lane use, or where deviations from code are proposed, documentation must be included showing how or where the proposed rates were obtained. The parking analysis must demonstrate that proposed parking supply is adequate to accommodate demand.

Transportation Demand Management Plans:

The City of Orange requires developers and the business community to assist in reducing peak hour and total vehicular trips by implementing Transportation Demand Management Plans (TDMs). The potential of a proposed project to reduce traffic through the use of a TDM plan should be addressed in the traffic study. This plan is in addition to Regulation 15 by the South Coast Air Quality Management District.

If a TDM plan is proposed as a mitigation measure for a project, and the traffic study attributes a reduction in peak and total traffic to the TDM plan, the following information must be provided:

1. A detailed description of the major components of the TDM plan and how it would be implemented and maintained on a continuing basis.
2. Case studies or empirical data that supports the anticipated reduction of traffic attributed to the TDM plan.
3. Additional Volume/Capacity ratio calculations that illustrate the circulation benefits of the TDM plan.
4. Enforcement Measures – how it will be monitored and enforced.
5. How does it comply with the South Coast Air Quality Management District Regulations.

TRANSPORTATION SYSTEMS IMPROVEMENT PROGRAM (TSIP):

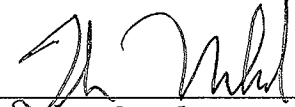
If the traffic impact analysis indicates unacceptable service levels at mid-block arterial segments and/or intersections within the study area, a description of proposed improvements to mitigate the deficiencies shall be included. The following areas are required to be addressed in the discussion of mitigation measures:

1. The location and nature of the improvements (This information should be summarized in exhibit form).
2. Volume/Capacity calculations showing the result of all proposed capacity improvements.
3. Implementation feasibility. (Including project cost.)
4. Feasibility of right-of-way acquisition where additional right-of-way is needed to implement improvements.
5. Consistency with acceptable design standards.
6. Timing of the proposed improvements.

7. A Table shall be submitted showing the Volume-to-Capacity ratios and Levels of Service of all studied intersections with and without project, and, with and without mitigation.
8. A single or a series of sketch plans shall be included within the body of the traffic report graphically depicting all mitigation measures dealing with roadway, parking, and access points. In cases where phased development of a project is proposed, a schedule identifying the improvements needed to mitigate traffic impacts at each phase will also be required.

The traffic impact analysis should provide the nexus between a project and the overall traffic impacts to City arterials and intersections. For cumulative or long-range analysis (i.e., General Plan build-out) the project is expected to participate in future improvements on a fair-share basis. In circumstances where a project proponent will be receiving a substantial benefit from an identified infrastructure improvement or where an improvement is proposed that specifically serves the private development (e.g., mid-block access and signalization at the project entry and/or associated striping modification) the project will take full responsibility towards providing the necessary infrastructure improvement.

By:



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8/15/07
Date