CITY OF ANAHEIM

CRITERIA FOR PREPARATION OF TRAFFIC IMPACT STUDIES

1.1 INTRODUCTION

Traffic studies are required by the City of Anaheim so that the impact of land use proposals on the existing and future circulation system can be adequately assessed and to insure that the California Environmental Quality Act (CEQA) and Congestion Management Program laws and guidelines are met. Identifying and documenting traffic impacts of a proposed project is the responsibility of the developer.

An applicant seeking project approval through the following actions will be notified at the pre-file/Interdepartmental Committee stage if a traffic study will be required.

<table>
<thead>
<tr>
<th>General Plan Amendment</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-classification</td>
<td>ZC</td>
</tr>
<tr>
<td>Specific Plan</td>
<td>SP</td>
</tr>
<tr>
<td>Variance</td>
<td>VAR</td>
</tr>
<tr>
<td>Conditional Use Permit</td>
<td>CUP</td>
</tr>
<tr>
<td>Tentative Tract Map</td>
<td>TT</td>
</tr>
<tr>
<td>Tentative Parcel Map</td>
<td>TD</td>
</tr>
<tr>
<td>Building Permit</td>
<td></td>
</tr>
</tbody>
</table>

- by right but of significant enough impact to warrant a traffic study as required by the City Traffic and Transportation Manager

A written analysis, meeting the requirements outlined in the "Traffic Study Content and Format" section of this manual, will be required prior to approval in the following cases:

1. When the AM or PM peak hour trip generation is expected to exceed 100 vehicle trips from the proposed development.

2. Projects on the Congestion Management Program (CMP) Highway System which generate 1,600 Average Daily Trips (ADT) or adjacent to CMP Highway System which generates 2,400 ADT.

3. Projects that will add 51 or more trips during either AM or PM peak hours to any monitored CMP intersection.

4. 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 and Transportation Manager shall determine whether a traffic study will be required.

Traffic studies must be prepared under the direction of a registered traffic engineer or a registered civil engineer with documented experience in transportation planning and traffic engineering. Initially, the study shall be submitted in draft form to Traffic Engineering Division. Comments relative to the study shall be provided by the City Traffic and Transportation Manager in writing to the Developer and his/her engineer so that any necessary revisions can be made prior to final submittal.

A flow chart illustrating the traffic study approval process is provided in Figure 1.

1.2 TRAFFIC STUDY CONTENT AND FORMAT REQUIREMENTS

In order to establish a mutually agreeable scope of work for the traffic study the consulting engineer and the developer shall meet with Planning Department staff and Traffic Engineering staff. A tentative schedule for reviewing and processing the traffic study will be developed. The initial meeting should include a discussion of the key issues along with the development scope and boundaries of the study area. Developer must submit a detailed site plan. City staff will provide substantial input into the following specific areas of the study:

1. Defining the general study area boundaries.


3. Approved developments in the vicinity of the project for cumulative analysis.

4. When warranted, Approved General Plan (build-out) traffic volumes.

5. Level of analysis required to properly assess anticipated impacts.

A second meeting between the consulting engineer and Traffic Engineering shall be required so that technical aspects of the traffic study may be discussed prior to the final analysis. Subjects for review and pre-approval will include but not be limited to;

1. Trip distribution and assignment assumptions and trip generation rates.

2. Intersections and roadway segments where capacity analysis will be required. As a minimum, intersections where the project will add 51 (i.e., 3% of 1,700) or more trips during either AM or PM weekday peak hours need to be studied. This threshold may be reduced for intersections that are projected to or currently operate at LOS “E” or “F”.
FIGURE 1
TRAFFIC STUDY REVIEW PROCESS

Project Submitted to Planning Department for Approval

Preliminary Review by Traffic Engineering to determine whether a traffic study is required

Traffic Study required

Applicant, Applicant’s Consultant, Planning and Traffic Engineering meet to discuss issues and develop review timeline

Traffic Consultant receives preliminary approval on trip distribution and assignment assumptions

Changes to study based on comments
Comments from Traffic Engineering
Draft Study submitted for review
No comments from Traffic Engineering

Final Traffic Study reviewed. Recommendations developed and Submitted to Planning Commission.

Action taken by the Planning Commission
3. Intersection Capacity Analysis assumption.

4. Inclusion of a Transportation Demand Management Plan (TDM) to mitigate unacceptable traffic impacts.

5. Any specific issues that require special consideration such as access, parking and special traffic controls.

The content and level of analysis necessary to evaluate a project will vary and are dependent on the scope of land use proposal and location within the city. An initial Anaheim Traffic Analysis Model (ATAM) run may be required to determine study intersections based on CMP and City requirements. The guidelines provided in Figure 2 shall be used along with input from the City staff and requirements outlined in the State and City CEQA guidelines to insure that the impacts of a proposed land use are adequately addressed by the traffic study.

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

A. 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 during the scoping meeting.

2. Existing Land Uses and Project Proposals

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

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

Information pertaining to land uses in the vicinity of the study area including both approved and proposed developments, shall be identified. During the scoping meeting, City staff will identify the need to assess impacts associated with approved and proposed developments.
FIGURE 2

Guidelines for Determining Scenarios to be Included in Traffic Impact Studies

<table>
<thead>
<tr>
<th>Prospective Action</th>
<th>Existing +Related Projects</th>
<th>Existing +Project +Related Projects</th>
<th>Short* Range Without Project</th>
<th>Short* Range With Project</th>
<th>Long Range Without Project</th>
<th>Long Range With Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditional Use Permit</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tract Map</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Zone Change</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>General Plan Amendment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

* Short-range impact studies require a three (3) to seven (7) year time frame for analysis purpose.

Project impacts identified in the short-range analysis are mitigated by the project. For cumulative long-range analysis (i.e., General Plan build-out), the project participates in future improvements on a fair-share basis.
4. **Existing and Proposed Roadways and Intersections**

Identify and describe the roadways 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 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 traffic study shall be provided.

**B: Trip Generation**

Trip generation will be calculated using the Anaheim Traffic Analysis Model (ATAM) 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 may be used with prior approval from the City.

A table summarizing the types of land 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.

**C. 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. In most cases the City will require use of the Anaheim Traffic Analysis Model runs to obtain trip distribution for the project in the study area. Trip distribution and assignment assumptions are required during the preliminary stages of the study and subject to approval of the City Traffic and Transportation Manager prior to inclusion within the study report.

**D. Existing and Projected Traffic Volumes**

All traffic volume information used to represent existing conditions shall be 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. When addressing future traffic volumes, five specific categories should be summarized in a single table and throughout the analysis using the following designations:

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

2. **Existing + Approved + Ambient Growth**: Cumulative existing traffic conditions plus all developments within the study area which has not yet been constructed, but has been approved through a discretionary action or building permit issuance. This alternative corresponds to the no project alternative for purposes of an EIR.

3. **Existing + Approved + Ambient Growth + Project**: Cumulative traffic conditions of existing, plus approved developments, plus traffic generated by proposed project.

4. **Future Conditions Without Project**: Short-range impact analysis (3 to 7 year horizon) without project.

5. **Future Conditions With Project**: Short-range impact analysis (3 to 7 year horizon) including project traffic.

6. **General Plan Development**: Build-out of all developments anticipated in the City's General Plan or implied by the City's Zoning Ordinance. ATAM Year 2025 or later projections shall be utilized for this purpose.

7. **General Plan Development + Project**: Cumulative traffic conditions of General Plan Development plus proposed project.

E. **Volume/Capacity Analysis**

Capacity analysis will be conducted at identified mid-block segments and intersections significantly impacted by the project 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 Traffic Engineering 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 and Transportation Manager.

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.

Per City's 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 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.

Wherever possible, 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) shall be based on the warrants stated in Caltrans Traffic Manual, latest edition. 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 and spacing will be required.

**Significant Transportation Impact**

A transportation impact on an intersection shall be deemed “significant” in accordance with the following table:

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Final V/C Ratio</th>
<th>Project-Related Increase In V/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>&gt; 0.700 – 0.800</td>
<td>equal to or greater than 0.050</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 0.800 – 0.900</td>
<td>equal to or greater than 0.030</td>
</tr>
<tr>
<td>E, F</td>
<td>&gt; 0.900</td>
<td>equal to or greater than 0.010</td>
</tr>
</tbody>
</table>

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 Related Projects but without any proposed mitigation.

**G. Phased Projects**

Traffic studies for projects that are planned to be developed in more than one phase must document the impact of each development phase on an individual basis. The phasing analysis will be required as a supplemental submittal subsequent to a General Plan Amendment approval but prior to any additional Planning Department approval actions.
H. **On-site Parking**

Parking studies are required to support variances from parking code requirements or the use of reciprocal parking. The parking rates to be used are those in Chapter 18 of the Anaheim Municipal Code. In cases where the code does not address parking rates for a specific land use, documentation must be included showing how or where the proposed rates were obtained.

I. **Transportation Demand Management Plans**

The City of Anaheim encourages 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 ration calculations that illustrate the circulation benefits of the TDM plan.

4. Enforcement Measures - how it will be monitored and enforces.

5. How does it comply with the South Coast Air Quality Management District Regulations.

J. **Mitigation Measures**

If the traffic impact analysis indicates unsatisfactory 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.

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 chart shall be submitted showing the Levels of Service of all studied intersections pre and post-project, 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 long-range analysis (i.e., General Plan build-out) the project participates in future improvements on a fair-share basis. Project’s equitable share is to be calculated using the following equation:

\[ P = \frac{T}{T_B - T_E} \]

Where:
- \( P \) = The equitable share for the proposed project’s traffic impact.
- \( T \) = The vehicle trips generated by the project during peak hour of adjacent street, vph.
- \( T_B \) = General Plan build-out forecast traffic volume (i.e., 20-year model or the furthest future model date feasible), vph.
- \( T_E \) = Existing traffic volume plus approved projects that have not been constructed or occupied, vph.

Once the project’s equitable share is calculated, rights-of-way and construction cost of improvements needed at general plan build-out shall be estimated and submitted to City for review and approval.

The above formula is not intended for circumstances where a project proponent will be receiving a substantial benefit from the identified mitigation measures. In these cases
(e.g., mid-block access and signalization at the project entry and/or associated striping modification) the project should take full responsibility towards providing the necessary infrastructure improvement.

K. **Executive Summary**

A clear concise summary of the study findings and proposed mitigation measure(s) is required in the executive summary.