CITY OF
AGOURA HILLS

TRAFFIC IMPACT ANALYSIS GUIDELINES

Development projects that have the potential to substantially affect the City of Agoura Hills' transportation system may be required to prepare a Traffic Impact Analysis (TIA). The City will consider the requirement of a TIA on a case-by-case basis as development projects are brought forward for consideration. This document describes the City of Agoura Hills' general practice for preparing such studies for development projects within the City.

I. When a Traffic Impact Analysis (TIA) is Required

A TIA may be required for any proposed development project for which at least one of the following criteria is satisfied:

1. The project will generate 50 or more new AM or PM peak-hour vehicle trip-ends*; or
2. The project will generate 500 or more new daily vehicle trip-ends*; or
3. The project will substantially affect an intersection or a roadway segment already identified as operating at an unacceptable level of service; or
4. The project is inconsistent with the *General Plan* land use, zoning designations, or could potentially generate substantially greater levels of traffic than contemplated by the *General Plan*; or
5. The project may create a hazard to public safety; or
6. The project will substantially change the off-site transportation system or connections to it.

* A vehicle trip-end is defined as either an origin or destination of a trip.

Note: The AM peak-hour is defined as the peak consecutive hour during the 7-9 AM peak period, and the PM peak-hour is defined as the peak consecutive hour during the 4-6 PM peak period. Both are on a weekday (Tuesday-Thursday). Analysis of special time periods may be required depending on the land use.

The following describes the general process for determining if any of the above criteria are satisfied:

1. Compute the AM and PM peak-hour trip generation in a manner consistent with current *Trip Generation* (published by the Institute of Transportation Engineers) methodologies.
2. Compute the daily trip generation in a manner consistent with current *Trip Generation* (published by the Institute of Transportation Engineers) methodologies.
3. Prepare the anticipated distribution pattern for the proposed project trips and quantify the number of trips that would be added to the surrounding intersections and roadway segments.
4. Consult the City's Planning and Community Development Department for *General Plan* documentation and assumptions, and Zoning Code provisions.
5. Consult with the City's Planning and Community Development Department and Public Works Department to determine if there are any existing known or anticipated public safety hazards.

If none of these cases apply, a TIA may not be necessary unless the City deems that special circumstances require analysis. In certain cases, the City may require a less extensive analysis,

which might include obtaining traffic counts, preparing signal warrants, performing a focused TIA, etc.

II. Required Scope of Traffic Impact Analyses

a. Study Facilities

As a rule, the TIA must include any intersection or roadway segment, regardless of jurisdictional boundaries, to which at least 20 peak-hour project trips or 100 daily trips would be added. Projects only satisfying the minimum trip threshold (50 peak-hour and/or 500 daily trips) but with fewer than 20 peak-hour or 100 daily project trips to any single offsite facility, will normally only require analysis of the intersection(s) or roadway segment(s) adjacent to the project site. In addition, the TIA should evaluate the intersections/driveways proposed to provide access to the project site. The City may decide to include additional and/or alternate facilities on a case-by-case basis.

Additionally, the TIA should include the following:

- On-Site Circulation – review and evaluate access locations, driveway throat depths, and the size of major on-site circulation facilities with respect to operations, safety, and continuity with existing and planned facilities.
- Off-Site Roadways – study all locations where: 1) the project circulation system intersects with the existing or planned surrounding street system, and 2) project traffic may substantially affect the operation of a roadway or intersection.
- Transit – discuss all bus routes that have or will have a station or stop within ¼ mile of the project.
- Los Angeles County Congestion Management Plan (CMP) facilities – study all CMP facilities that may be substantially affected by the project in a manner consistent with current CMP guidelines.
- Bicycles – identify any existing or planned facilities that will be modified by the project or are within ¼ mile of the project.
- Pedestrians – identify any significant pedestrian facilities that will be affected by the project.
- Trucks –identify the number of truck trips that will be generated and design accommodations necessary to support these trucks.

b. Assessment of Proposed Project

The latest edition of the Institute of Transportation Engineers' (ITE) *Trip Generation* shall be used for trip generation forecasts. In some cases, the ITE data are based on a limited amount of studies or do not adequately represent the proposed land use(s). In these cases, and with approval from the City, trip generation rates could be obtained from the current *San Diego Traffic Generators* (San Diego Association of Governments) or should be verified through local field observation of similar uses.

Published ITE trip generation rates represent an average for a number of observed projects. A particular project, however, may include specific characteristics that call for adjustments to the rate to reflect its trip generation characteristics adequately. Trip

generation adjustments may be justified to account for pass-by trip reductions for retail uses or trip rate reductions for multi-use commercial centers, where the mix of uses could reasonably be expected to attract multi-purpose trips. Great care must be taken when adjusting trip generation rates. All trips, including pass-by trips, must be included in the analysis of the Project's driveways. The analyst must document the basis for proposed trip rate adjustments and receive approval from the City.

The distribution patterns for a project can use existing traffic counts, the regional transportation model, or local knowledge. The trip distribution assumptions shall be reviewed and approved by the City.

Current development data obtained from the City's Planning and Community Development Department (*Development Summary*) should be used in projecting future traffic levels. The land use assumptions in the vicinity of the project should be verified at the Traffic Analysis Zone (TAZ) level by comparing with other sources (*General Plan, Specific Plans, etc*).

c. *Analysis Scenarios*

TIAs should incorporate the following analysis scenarios, unless directed otherwise by the City:

1. Existing Conditions
2. Existing plus Project Conditions
3. Near Term (Project Opening Year) Conditions
4. Near Term (Project Opening Year) plus Project Conditions
5. Long Term (Cumulative) Conditions

Additional scenarios may be required if the project is large and is to be developed in phases. If there are other approved or pending developments in the vicinity, they must be identified and included in the appropriate scenario(s). Near term conditions include any developments that are approved and under construction, or pending, that would be operational by the opening year of the project. Near term roadway improvements may include those that are consistent with the *General Plan Mobility Element* and are funded and are expected to occur by the opening year of the project. Cumulative conditions include Near Term conditions, ambient growth, and any additional developments that either have an accepted application on file at the City or developments that are anticipated in the near future. Cumulative roadway improvements may include those that are consistent with the *General Plan Mobility Element* and are expected to occur by the cumulative year. All programmed/funded capital improvements that will affect traffic capacity of the study intersections and roadway segments shall be considered in the appropriate analysis scenario.

The determination of study time periods for each project shall be made in consultation with the City and be based upon the peaking characteristics of the project traffic and the surrounding street system. Although most studies will include weekday AM and/or PM peak-hour analyses, special circumstances may require mid-day or weekend analyses.

d. *Traffic Data Collection*

Weekday traffic counts shall be conducted on Tuesday, Wednesdays, or Thursdays (typically excluding weeks with a holiday or during the year-end holiday season). City approval is required prior to collecting traffic counts during weeks with holidays or during the year-end holiday season. Peak hour counts shall be conducted for the two hours between 7 and 9 AM, for the AM peak, and between 4 and 6 PM, for the PM peak. Mid-day, weekend, or other counts may be considered on a project-specific basis and should be conducted only after consultation with the City.

e. *Analysis Methodology, Measures of Effectiveness, & Analysis Tools*

i. Signalized Intersections

The Intersection Capacity Utilization (ICU) method shall be applied with sufficient detail to produce a result measured in volume-to-capacity ratio and level of service. A 5% loss time shall be included in the volume to capacity calculations. The following assumptions should be made when calculating the levels of service for all intersections, unless special circumstances justify revision of these assumptions:

Peak Hour Factor (PHF) = 1.0, unless otherwise specified by the City
Saturation flow rate = 1,600 vehicles per hour per lane (vphpl)
Dual left turn lanes saturation flow rate = 2,880 vehicles per hour (vph)
Passenger Car Equivalent (PCE) = 1.0
Multi-Lane Factor (MLF) = 1.0
Right-Turn on Red Reduction = as justified, but no more than the volume of the adjacent left-turn lane (excluding U-turns)

ii. Un-Signalized Intersections

The most recent *Highway Capacity Manual* (HCM) methodology should be applied. To determine the LOS, average intersection control delay shall be used at all-way stop controlled (AWSC) intersections, and the worst stop-controlled approach lane group control delay shall be used at two-way stop controlled (TWSC) intersections. A signal warrant analysis shall be prepared for all intersections and scenarios where the level of service of an intersection movement exceeds the City's acceptable limits. A PHF of 1.0 and PCE of 1.0 should be used, unless special circumstances justify otherwise.

iii. Roadway Segments

Roadway segment analysis should be based on the County of Los Angeles TIA guidelines.

iv. CMP and Caltrans Facilities

The TIA methodologies described in the Congestion Management Plan (CMP) guidelines shall be used when analyzing CMP facilities. In addition, and with prior approval from the City, Caltrans facilities shall be analyzed based upon the methodologies included in the Caltrans' *Guide for the Preparation of Traffic Impact Studies*.

v. Computer Models

The use of computer models to evaluate difficult or complex traffic conditions is acceptable. The method of analysis and assumptions need to be accepted by the City prior to use.

f. Impacts and Mitigation

The results of the analysis must be compared to the significance criteria as established by the policies of the City's *General Plan*. While the *General Plan* provides generalized thresholds, the following criteria are a definitive guide to the level of significance:

A proposed project is considered to result in a significant impact if, prior to mitigation, the proposed project:

i. Degrades operations at a signalized intersection as follows:

Study Intersections		
Pre-Project		Increase in v/c
LOS	v/c	
C	0.71 - 0.80	0.04 or more
D	0.81 - 0.90	0.02 or more
E/F	0.91 or more	0.01 or more

or

ii. Degrades the Level of Service (LOS) at an unsignalized intersection to an unacceptable level of LOS D or worse; or

iii. Increases delay at an unsignalized intersection operating at an unacceptable level by five or more seconds; or

iv. Results in satisfying the most recent *California Manual on Uniform Traffic Control Devices* (CAMUTCD) peak-hour volume warrant or other warrants for traffic signal installation at the intersection; or

v. Increases the volume-to-capacity (v/c) ratio on a roadway segment operating at an unacceptable level (LOS D, E or F) by 0.05 or more; or

Mitigation measures are required in all cases where the results of the TIA indicate that the proposed project would either create a significant impact by itself, or would contribute to a significant impact under the various scenarios analyzed, as defined in Section II(c). Levels of service at the study intersections and roadway segments must be calculated with and without the proposed mitigation measures. Mitigation measures must be feasible given physical, environmental, and other constraints, and shall mitigate the project specific impacts to pre-development conditions. In cases where the development would contribute to an impact, the project's percentage contribution to that impact must be identified in the TIA. The project applicant shall work with City staff to identify the appropriate Fair Share Contribution Method that should be used for the calculation.

III. TIA Processing & Format Requirements

Initial coordination should occur with the City to confirm key aspects of the TIA. These critical items include facilities to be studied, approved/pending projects, analysis methodologies, etc. The TIA shall be submitted as part of an application for approval for a project or permit.

The TIA shall fully document the approach, methodology, and assumptions of the analysis. The TIA must clearly explain the reasons for any adjustments to the trip generation rates and assumptions used for trip distribution and assignment. Figures are to be used to help illustrate these assumptions. The report must summarize the results of the LOS calculations in table form, and include figures showing the traffic volumes for the project alone and for each analysis scenario. Signal warrant worksheets and LOS calculation sheets must be included as appendices to the report.

Prepared by the City of Agoura Hills Public Works Department, July 2011.

Ramiro S. Adeva III, PE
City Engineer
City of Agoura Hills

Srikanth Chakravarthy, PE, TE
City Traffic Engineer
Kimley-Horn and Associates, Inc.