REVISED DRAFT - Traffic Impact Study Guidelines

September 1, 2007

Introduction

The purpose of this section is to provide a general guide to applicants and/or consulting engineers assessing the potential traffic impacts of new developments proposed within the City or which may result from related changes in zoning and General Plan amendments. These guidelines were revised in 2007 to be consistent with the Caltrans Traffic Impact Study Guidelines. Development applications will not be deemed complete until a final approved traffic report is received by the City. The following guidelines have been developed to provide for clear, orderly, and consistent analysis by establishing minimum standards for all traffic impact studies and reports. The Public Works Department will review the traffic studies based on these criteria herein and reject those which are incomplete or inaccurate.

For the purposes of the traffic studies, all land at one location, including existing development or available land for building development under common ownership or control by an applicant, shall be considered when determining if required criteria are met. An applicant shall not avoid the intent of this criteria by submitting partial or segmented applications or approval requests for building permits, development plans, subdivisions, etc. The phrase "at one location" means all adjacent land of the applicant, the property lines of which are contiguous or nearly contiguous at any point, or separated by other land of the applicant, or a public or private street, road, highway, or utility right-of-way or other public or private right-of-way.

Traffic Impact Study Requirement

The preparation of a Traffic Impact Study is necessary when a project generates twenty (20) or more net new vehicle trips during the weekday AM peak hour, weekday PM peak hour or weekend peak hour of generator. The amount of traffic generated by projects shall be calculated using the methodology and guidelines of the latest edition of the *Institute of Transportation Engineer's, Trip Generation Manual* (currently the 7th Edition of this reference).

Developments of the following size or larger would generate 20 or more peak hour trips and would thus require a traffic study:

- Retail – 7,000 square feet
- Single Family Residential – 20 homes
- Condominium – 35 units
- Apartment – 30 units
- Industrial – 20,000 square feet
- Hotel – 25 rooms
- Restaurant – 45 seats

Traffic Impact Study Analysis

The traffic impact study shall identify and analyze all the impacts to the operational conditions of the transportation facilities in the project area in accordance with the latest edition of the Transportation Research Board's Highway Capacity Manual (currently the year 2000 version

of this reference). The Operational Methodology of the HCM shall be used for signalized intersections. Intersections on State Route 29 will not be analyzed as free bodies, but as a system, using a computational tool such as Synchro or VISSIM. The interaction of individual intersections with on another, metering of flow, and queue spillback between intersections along State Route 29 will be accounted for in the analysis of intersections on the state highway.

Analysis of the following conditions is required:

- Existing;
- Existing plus approved projects
- Existing plus approved projects plus project
- Cumulative; and
- Cumulative plus Proposed Project.

Data for existing traffic conditions shall be acquired by the applicant using their own resources. Data shall include morning and evening peak hour turning movement counts. Daily traffic volumes may also be required for all roadways in the project area, as directed by the City's Public Works Department. Turning movement counts shall be collected from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. at 15-minute intervals.

Traffic counts for weekends or other time periods will be required if the peak hour of project traffic generation does not occur on an average weekday. The applicant shall check with the City's Public Works Department to determine if weekend counts are required. Data shall not be collected on holidays, days immediately prior to/after holidays, or during the last two weeks in December. Traffic counts shall not be used if more than two (2) years old. The use of counts greater than one (1) year old must be approved by the City Public Works Department.

Cumulative conditions shall reflect buildout of the City's General Plan and anticipated sphere of influence in the year 2030. The use of the most recent version of the City or County travel demand forecast model is recommended for use. Consult with the City's Public Works Department.

All intersections to which the project would add fifty (50) or more peak hour trips will be included in the scope of the Traffic Impact Analysis. In addition, all project access intersections, driveways and intersections adjacent to the project site shall be counted and included in the study.

Project traffic impacts shall be analyzed in terms of generally acceptable procedures for trip generation, trip distribution, and traffic assignment.

Operational conditions to be considered include, but are not limited to:

- Geometric characteristics of public streets and highways;
- Travel patterns and circulation of vehicles, pedestrians, etc. Traffic volume and traffic composition;
- Traffic control devices;
- Transit facilities, routes, and regulations;
- On-site parking, parking facilities, and regulations;
- Bicycle facilities, routes, and regulations;

- Pedestrian facilities, routes, and regulations; and
- Truck loading and turning radii.

A cross-section(s) of the street(s) which access to or egress from the proposed project must be included and show all pavement dimensions. In addition, the study shall include a plan view of the streets in the study area from which sight distances can be calculated, the location of surrounding driveways, and the location and description of unusual features that may pose unusual traffic circulation or pedestrian problems.

The applicant is required to recommend land use and/or appropriate traffic engineering modifications which will mitigate the operational impacts identified by the study and maintain an acceptable level of service on adjacent roadways, intersections, transit, and parking facilities. These may include:

ROADWAY IMPROVEMENTS

- Optimize location of access point(s) with respect to sight distance
- Addition of through traffic lane(s), right turn lane(s), and left turn lane(s)
- Improvement of sight distances at intersections and driveways to acceptable standards
- Provide grade separation of facilities
- Traffic Control Modification (warrants must be met)
- Provide for yield or stop control
- Provide for traffic signal control, including new installation and upgrading and/or modifying phasing of existing signal
- Provide channelized islands
- Restrict turns
- Other engineering improvements

TRANSIT FACILITIES

- Provide bus turn-outs, park-and-ride lots and/or bus stops

PARKING FACILITIES

- Design parking facilities to allow free flow access to and from the street
- Provide adequate off-street parking in accordance with City Code and ITE demand statistics

BICYCLE AND PEDESTRIAN FACILITIES

- Provide for access to, from, and through development for bicyclists and pedestrians
- Recommend designating bicycle paths, lanes, and facilities

LAND USE CONTROLS

- Reduce density
- Alter proposed land use

TRANSPORTATION DEMAND MANAGEMENT (TDM)

- Flexible working hours
- Institute preferential parking for carpools
- Encourage employees to use carpools and public transportation

City Review Process

The following items shall be submitted to the City Public Works Department for review and approval:

- Scope of Work – Submitted prior to conducting traffic counts and other data collection;
- Trip Generation, Trip Distribution and Trip Assignment – Submitted prior to LOS analysis;
- Draft Report; and
- Final Report with responses to City comments and questions.

Significance Standards

A project would normally have a significant effect on the environment if it would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., results in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads or delays at intersections), or change the condition of an existing street (i.e., street closures, changing direction of travel) in a manner that would substantially affect access or traffic load and capacity of the street system. The specific criteria utilized for this analysis are as follows:

Intersection Level of Service Criteria: A project-related or cumulative traffic impact is considered to be significant if the proposed project:

- Results in a level of service for intersections within the project limits worse than LOS C.
- Increase V/C ratio at any of study intersections greater than or equal to 0.01
- Causes the existing baseline level of service to degrade to worse than LOS D (LOS E at American Canyon Road/SR 29) at any intersection as stipulated in the City's General Plan, Circulation Element.
- Causes queues at an intersection to spill back out of their available storage or into adjacent intersections.

Pedestrian and Bicycle Criteria: A pedestrian or bicycle impact is considered to be significant if the project:

- Results in potential conflicts for pedestrians or bicyclists;
- Does not satisfy Americans with Disabilities Act requirements;
- Fails to provide adequate bicycle and pedestrian access; or
- Exacerbates a current unsafe pedestrian or bicycle condition in the project area.

Transit Impact Criteria: A transit impact is considered to be significant if the project:

- Causes transit demand above the levels able to be adequately provided by local transit operators or agencies.

Site and Circulation Impact Criteria: A site and circulation impact is considered to be

significant if the project:

- Results in interference with traffic flow on public streets at site access driveways;
- Results in potential internal circulation conflicts for pedestrians or motorists;
- Results in insufficient or inadequate accessibility for delivery or service vehicles that would interfere with traffic flow; or
- Results in circulation patterns that are inconsistent with General Plan policies.

Parking Impact Criteria: A parking impact is considered to be significant if the project:

- Results in projected parking demand that would exceed the proposed parking supply on a regular and frequent basis; or
- Results in an increased use of permanent neighborhood parking for area residents.

Traffic Impact Study Format and Required Elements

Though the extent and content of Traffic Impact Study reports will vary with the needs of the projects being studied, certain guidelines are applicable to all such reports. The following information, when appropriate shall be included in the report:

- Cover sheet (include name and location of project, developer, engineer, and date);
- Engineer's stamp and wet signature;
- Table of Contents;
- Scope and Purpose;
- Description of proposed development;
    - Type of development;
    - Size of development;
    - Location map, including major streets and study intersections;
    - Site plan, including proposed driveways, streets, parking facilities, and internal circulation for vehicles, bicyclists, and pedestrians;

- Setting
    - Describe existing roadway system within project site and surrounding area (provide map)
    - Describe location and routes of nearest public transit system serving the project (provide map)
    - Describe location and routes of nearest bicycle and pedestrian facilities serving the project (provide map)

- Summary of Existing Conditions
    - Map of study area with ADT of major streets
    - Map of study area with weekday and weekend (if applicable) peak hour turning movements
    - Table of existing AM, PM, and weekend (if applicable) peak hour levels of service
    - Collision diagram and accident rate analysis
    - Signal warrants
    - Queue Lengths (95^{th} Percentile)

- Summary of Existing Plus Project Conditions
    - Figure showing trip distribution and assignment
    - Table of trip generation for project

- Map of study area with weekday and weekend (if applicable) peak hour turning movements (differentiate between existing and project volumes)
- Table of AM, PM, and weekend (if applicable) peak hour level of service
- Signal warrants
- Queue Lengths (95th Percentile)

- Summary of Cumulative Conditions
  - Table of AM, PM, and weekend (if applicable) peak hour level of service
  - Signal warrants
  - Queue Lengths (95th Percentile)
- Note: All of the intersections to be analyzed shall be numbered. Enlarged diagrams shall be provided to show lane configurations, traffic volumes, and turning volumes in the peak hours.
- Summary of Cumulative Plus Project Conditions
  - Table of AM, PM, and weekend (if applicable) peak hour level of service
  - Signal warrants
  - Queue Lengths (95th Percentile)

- Transit Analysis
- Parking Analysis
  - Recommendations regarding the number and location of proposed driveways shall be provided.
- Site Access Analysis
  - The report shall evaluate compliance with the parking dimensions specified in the City's Zoning Code as well as general parking best practices.
- Bicycle and Pedestrian Analysis

- Findings and Recommended Mitigation Measures
  - Summary table of AM, PM, and weekend (if applicable) peak hour levels of service
  - Findings for no project impacts
  - Findings for project Impacts
  - Findings for cumulative impacts
  - Mitigation measures for project impacts
  - Mitigation measures for cumulative impacts
  - Financing of mitigation measures and project's pro rata costs
  - Scheduling of mitigation measures
  - Implementation responsibility

- Analysis methods, worksheets, and calculations Computer printouts