

Traffic Impact Analysis Report Guidelines



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Prepared by the County of Los Angeles
Department of Public Works

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I. Introduction

The County of Los Angeles Department of Public Works has established the following Guidelines for the preparation of Traffic Impact Analysis (TIA) reports. The purpose of these Guidelines is to establish procedures to ensure consistency of analysis and the adequacy of information presented and timely review by County staff. It is strongly recommended that the applicant's traffic engineer consult with County staff before beginning the study to establish the scope and basic assumptions of the study and any deviations from these Guidelines to avoid unnecessary delays or revisions. For assistance in the TIA scoping process, the Traffic and Lighting Division, Traffic Studies Unit, can be contacted at (626) 300-4820.

II. Requirements

Generally, the Department staff is concerned with adverse impacts on traffic if:

1. Traffic generated by a project considered alone or cumulatively with other related projects, when added to existing traffic volumes, exceeds certain capacity thresholds of an intersection or roadway, contributes to an unacceptable level of service (LOS), or exacerbates an existing congested condition.
2. Project generated traffic interferes with the existing traffic flow (e.g., due to the location of access roads, driveways, and parking facilities).
3. Proposed access locations do not provide for adequate safety (e.g., due to limited visibility on curving roadways).
4. Nonresidential uses generate commuter or truck traffic through a residential area.
5. Project generated traffic significantly increases on a residential street and alters its residential character.

A traffic report must be prepared by a registered Civil or Traffic Engineer. A traffic report is generally needed if a project generates over 500 trips per day or where other possible adverse impacts as discussed in the Analysis and Impact Section (see page 4) of these Guidelines are identified. Before a full review is conducted, the County staff will check the completeness of the TIA report using the attached check list (Exhibit A). If the report is missing any of the check list items, it will be returned for revision.

III. TIA Report Contents

A. Project Description

The following information is required:

1. A description of the project, including those factors which quantify traffic generators, e.g., dwelling units, square feet of office space, persons to be employed, restaurant seats, acres of raw land, etc. For residential developments, the description should indicate the type of residence, (e.g., one level or townhouse condominiums, and if its use is for families, adults or retirees).
2. A plot plan showing proposed driveways, streets, internal circulation, and any new parking facilities on the project site.
3. A vicinity map showing the site location and the study area relative to other transportation systems.
4. A brief history of the projects that are part of the phased Master Plan or a parent tract/parcel map.

B. Transportation Circulation Setting

The following information is required:

1. Existing and Proposed Site Uses

A description of the permitted and/or proposed uses of the project site in terms of the various zoning and land use categories of the County, and the status and the usage of any facilities currently existing on the site.

2. Existing and Proposed Roadways and Intersections

A description of existing streets and roadways, both within the project site (if any) and in the surrounding area. Include information on the roadway classifications (per the Highway Plan), the number of lanes and roadway widths, signalized intersections, separate turn lanes, and the signal phases for turning movements.

Existing daily directional and peak-hour through and turning traffic volumes on the roadways surrounding and/or logically associated with the project site, including Secondary and Major highways and freeways. Local streets affected by the project should also be shown. Each report shall include appendices providing count data used in the preparation of the report. The source and date of the traffic volume information shall be indicated. Count data should not be over one year old. Since peak volumes vary considerably, a ten percent daily variation is not uncommon, especially on recreational routes or roadways near shopping centers; therefore, representative peak-hour volumes are to be chosen carefully.

All assumed roadways and intersections or any other transportation circulation improvements must be identified and discussed. The discussion should include the scope and the status of the assumed improvements including the construction schedule and financing plan. It should be noted that all assumed roadways and intersections or any other transportation circulation improvements will be made a condition of approval for the project to be in place prior to the issuance of building permits. If assumed improvements do not get built on time due to an unforeseeable condition, traffic conditions for a different assumed highway network or other mitigation measures will be considered if a traffic study is submitted with a different assumed network or other measures are recommended to mitigate the traffic impact in question.

C. Analysis and Impact

The following information is required:

1. Trip Generation Analysis

Tabulate the estimated number of daily trips and a.m. and p.m. peak-hour trips generated by the proposed project entering and exiting the site. Trip generation factors and source are to be included. The trip generation rates contained in the latest edition of the Institute of Transportation Engineers Trip Generation manual should generally be used, except in the case of condominiums/townhomes when the following rates should be used per unit:

	ADT	A.M.-Peak	P.M.-Peak
		Outgoing/Incoming	Outgoing/Incoming
Condominiums/ Townhomes	8.0	0.48/0.06	0.26/0.47

There may be a trip reduction due to internal and/or pass-by trips. Internal trip reduction can only be applied for mixed-use types of developments and pass-by trip reduction for retail/commercial types of developments. Internal or pass-by trip reduction assumptions will require analytical support based on verifiable actual similar developments to demonstrate how the figures were derived and will require approval by the County.

2. Trip Distribution

Diagrams showing the percentages and volumes of the project and nearby project's a.m. and p.m. peak-hour trips logically distributed on the roadway system must be provided. The Regional Daily Trip Distribution Factors (Exhibit D-3) contained in the Congestion Management Program (CMP) Land Use Analysis Guidelines shall be referenced for regional trip distribution assumptions. If it is assumed that new routes will alter traffic patterns, adequate backup including traffic distribution maps must be provided showing how and why these routes will alter traffic patterns.

The study area should include arterial highways, freeways, and intersections generally within a one-mile radius of the project site.

Note: This distance may be greater than one-mile for rural areas depending on the proximity to nearby signalized intersections and the availability of master plan access routes.

3. Related Projects List

A list of related projects that are approximately within a one-and-a-half mile radius of the project site and would reasonably be expected to be in place by the project's build out year must be included in the report. Related projects shall include all pending, approved, recorded, or constructed projects that are not occupied at the time of the existing traffic counts.

The County of Los Angeles Department of Regional Planning (DRP) and other public agencies (if necessary) should be contacted to obtain the latest listings. A table and a map showing the status, project/zone change/conditional use permit/parcel map/tract number, and the location of each project must be provided. For a computer printout of the listing of all filed projects within the County, Land Development Management Section of the DRP, at (213) 974-6481 can be contacted.

4. LOS Analysis

If it appears that the project's generated traffic alone or together with other projects in the area could worsen the LOS of an intersection or roadway, a "before" and "after" LOS analysis is necessary. The Intersection Capacity Utilization (ICU) or Critical Movement Analysis are two methods often used to assess existing and future LOS at intersections.

If the ICU planning method is used, a maximum of 1,600 vehicles per hour per lane should be used (2,880 vehicles per hour should be used for dual left-turn lanes) and a ten percent yellow clearance cycle should be included. Intersection LOS analysis and calculation work sheets, as well as diagrams showing turning volumes shall be included in the report for the following traffic conditions.

- (a) Existing traffic;
- (b) Existing traffic plus ambient growth to the year the project will be completed (preproject);
- (c) Traffic in (b) plus project traffic;
- (d) Traffic in (c) with the proposed mitigation measures (if necessary);
- (e) Traffic in (c) plus the cumulative traffic of other known developments; and
- (f) Traffic in (e) with the proposed mitigation measures (if necessary).

The project's impact on two-lane roadways should also be analyzed for all of the above traffic conditions if those two-lane roadways are used for access. LOS service analysis contained in the Highway Capacity Analysis, Chapter 8, Two-Lane Highways, should be used to evaluate the project's impact. For simplified

analysis, use the established significant impact thresholds for two-lane roadways as shown on page 6.

5. Significant Impact Threshold

For intersections, the impact is considered significant if the project related increase in the volume to capacity (v/c) ratio equals or exceeds the threshold shown below.

INTERSECTIONS		
Preproject		Project V/C Increase
LOS	V/C	
C	0.71 to 0.80	0.04 or more
D	0.81 to 0.90	0.02 or more
E/F	0.91 or more	0.01 or more

The project is deemed to have a significant impact on two-lane roadways when it adds the following percentages based on LOS of the preproject conditions.

TWO-LANE ROADWAYS				
Directional Split	Total Capacity (PCPH)	Percentages Increase in Passenger Car Per Hour (PCPH) by Project		
		Preproject LOS		
		C	D	E/F
50/50	2,800	4	2	1
60/40	2,650	4	2	1
70/30	2,500	4	2	1
80/20	2,300	4	2	1
90/10	2,100	4	2	1
100/0	2,000	4	2	1

6. Analysis Discussion

Discuss conclusions regarding the adverse impacts caused by the proposed project on the roadway system. If the cumulative traffic impact of this and other projects require mitigation measures, such as traffic signals, then estimate the percent share using the project percent share formula given in the Section III D of the TIA Guidelines. When the proposed project and other nearby developments are expected to significantly impact adjacent roadways, the developer may be required to enter into a secured agreement to contribute to a benefit district to fund major roadway and bridge improvements in the region. Also, for all recommendations to increase the number of travel lanes on a street or at an intersection as a mitigation measure, the report must clearly identify the impacts associated with such a change such as whether or not additional right of way will be required and whether it is feasible to acquire the right of way based on the level of development of the adjacent land and buildings (if any).

Discuss other possible adverse impacts on traffic. Examples of these are: (1) the limited visibility of access points on curved roadways; (2) the need for pavement widening to provide left-turn and right-turn lanes at access points into the proposed project; (3) the impact of increased traffic volumes on local residential streets; and (4) the need for road realignment to improve sight distance.

Projects which propose to amend the County's General Plan Land Use and substantially increase potential traffic generation must provide an analysis of the project at current planned land use versus proposed land use in the build out condition for the project area. The purpose of such analysis is to provide decision makers with the understanding of the planned circulation network's ability to accommodate additional traffic generation caused by the proposed General Plan Land Use amendments.

D. Traffic Models and Model Generated TIA's

Computerized traffic models are planning tools used to develop future traffic projections based on development growth patterns. The Department currently operates two traffic models, one for the Santa Clarita Valley and another for the Ventura Corridor area. The Department can test proposed development project traffic impacts for the public in these areas for a fee. For assistance in the traffic modeling, the Planning Division, Transportation

Planning/Assessments Section, can be contacted at (626) 458-4351.

For TIA=s prepared using data from outside traffic modeling, the following information is required:

1. The type of modeling software used to generate the traffic analysis report data (i.e., TRANPLAN, EMME/2, etc.).
2. The list of land use assumptions by traffic analysis zones (TAZ=s) and their sources used in the traffic model in lieu of a related projects list.
3. A copy of the computerized roadway network assumed to be in place at the time of the project. Streets should be color-coded by street type. Also, TAZ=s and their corresponding centroidal connectors, as well as number of lanes should be displayed.
4. The list of trip generation rates used in the traffic model and their sources.
5. Model runs (plots) identifying both the with and without project scenarios. The volumes displayed on the plots should be in 100's for Average Daily Vehicle Trips (ADT) and 10's for peak-hour plots.

E. Traffic Signals

The following information is required:

Traffic signal warrant analysis using the State of California Department of Transportation (Caltrans) Peak-Hour (Figures 9-8 and 9-9 of Caltrans Traffic Manual) and Estimated Average Daily (Figure 9-4 of Caltrans Traffic Manual) Traffic Warrant Analysis should be provided. If the installation of signals is warranted with the addition of the project's traffic, then the installation will be the sole responsibility of the project. If it is warranted with cumulative traffic of the project and other related projects, the following formula should be used to calculate the project percent share.

$$\text{Project Percentage Share} = \frac{\text{Project Traffic}}{\text{Project+Other Related Projects Traffic}}$$

The project percent share should be based on the peak-hour volumes that warrant signals. If both peak hours satisfy the installation of signals, the average of the two peak-hour volumes should be used in the percent share analysis.

F. Mitigation Measures

The following information is required.

Identify feasible mitigation measures which would mitigate the project and/or other related projects' significant impacts to a level of insignificance. Also, identify those mitigation measures which will be implemented by others. Those mitigation measures that are assumed to be implemented by others will be made a condition of approval for the project to be in place prior to issuance of building permits. Mitigation measures may include, but are not limited to, the following:

1. Traffic Engineering Techniques.

- a. Locate access points to optimize visibility and reduce potential conflict.
- b. Design parking facilities to avoid queuing into public streets during peak arrival periods.
- c. Provide additional off-street parking.
- d. Dedicate visibility easements to assure adequate sight distance at intersections and driveways.
- e. Signalize or modify traffic signals at intersections.
- f. Install left-turn phasing and/or multiple turning lanes to accommodate particularly heavy turning movements.
- g. Widen the pavement to provide left- or right-turn lanes to lessen the interference with the traffic flow.¹
- h. Widen intersection approaches to provide additional capacity.
- i. Prohibit left turns to and from the proposed development.
- j. Restrict on-street parking during peak hours to increase street capacity.¹

¹

Physical roadway improvements to improve capacity should be considered before considering parking restrictions.

2. **Contribute to a benefit district to fund major capital improvements**

- a. Construct a grade separation.
- b. Improve or construct alternate routes.
- c. Complete proposed routes shown on the Los Angeles Highway Plan.
- d. Improve freeway interchanges (bridge, widening, modifications, and etc.).

3. **Transportation System Management (TSM) Techniques²**

- a. Establish flexible working hours.
- b. Encourage employee use of carpools and public transportation (specific measures must be indicated).
- c. Establish preferential parking for carpools.
- d. Restrict truck deliveries to Major and Secondary highways and encourage deliveries during the off-peak hours.
- e. Establish a monitoring program to ensure that project traffic volumes do not exceed projected traffic demand.

Note: When it appears that other jurisdictions will be impacted by a development, the Department will request that the involved jurisdiction also review the TIA. A written response from that jurisdiction should be provided with appropriate follow-up to the lead County agency.

G. CMP Guidelines

The following information is required:

² Contributions to a benefit district and/or TSM techniques may not be used to lower LOS in the capacity calculations.

Where the project meets the criteria established in the County of Los Angeles' CMP Land Use Analysis Guidelines, a CMP analysis must be provided. A copy of the latest Guidelines will be available upon request. A CMP TIA is required for all projects required to prepare an Environmental Assessment based on local determination or projects requiring a traffic study. The geographic area examined in the TIA must include the following, at a minimum.

- § All CMP arterial monitoring intersections (see Exhibit B of the Guidelines), including freeway on- or off-ramp intersections, where the proposed project will add 50 or more trips during either the a.m. or p.m. peak hours.
- § Main line freeway monitoring locations (see Exhibit C of the Guidelines) where the project will add 150 or more trips, in either direction, during the a.m. or p.m. weekday peak hours.
- § Caltrans must also be consulted to identify other specific locations to be analyzed on the State highway system.

If, based on these criteria, the TIA identifies no facilities for study, no further traffic analysis is required.

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Attach.

EXHIBIT A
TRAFFIC IMPACT ANALYSIS REPORT CONTENTS CHECK LIST

Note: Before a full review is conducted, PW's staff will check the completeness of the Traffic Impact Analysis Report. If the Report is missing any of the items listed below, it will be returned for revision.

CONTENT	YES/ NO	COMMENT
Site Plan \$ Access locations \$ Interior circulation		
Trip Generation Rates \$ Institute of Transportation Engineers (ITE) trip generation rates \$ Documentation for alternate rates		
Trip Distribution \$ Regional \$ Local project (am/pm) \$ Local related projects(am/pm)		
Traffic Counts \$ Taken within one year \$ Date/Time		
Discounting \$ Internal trip discounts for mixed use developments \$ Pass-by trip discounts for commercial/retail developments \$ Backup		
Level of Service Calculations \$ Intersection Capacity Utilization (ICU) or Criteria Movement Analysis \$ 10 percent yellow clearance for ICU planning method \$ 1,600 vehicles per lane (vpl); 2,880 vpl for dual left-turn lanes for ICU planning method \$ Calculation sheets \$ Scenarios as required per Guidelines \$ Existing/Future lane configurations		
Signal Warrant Analysis \$ Peak-hour/Average Daily Traffic per the State of California Department of Transportation standards		
Mitigation Measures \$ Project impacts \$ Cumulative developments impacts \$ Projects percent share of the cost to mitigate cumulative development impacts		
Congestion Management Program Analysis		

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