Riverside County
Transportation Department

Traffic Impact Analysis
Preparation Guide

April 2008

Juan C. Perez
Director of Transportation

Date

1.0 INTRODUCTION

The Riverside County Transportation Department ("Transportation Department") requires that the traffic and circulation impacts of proposed development projects, General Plan Amendments, and Specific Plans be analyzed. The traffic impacts of proposed developments are to be analyzed through the preparation of a Traffic Impact Analysis (TIA) prepared in conformance with Transportation Department requirements. The Traffic Impact Analysis must be prepared, signed and sealed by a Traffic Engineer or a Civil Engineer registered in the State of California, qualified to practice traffic engineering ("Engineer"). This Traffic Impact Analysis Preparation Guide identifies the required format and methodology that is generally required to be utilized in the study preparation, subject to the review and approval of the Transportation Department.

2.0 PURPOSE

The Traffic Impact Analysis is to be prepared to assess the following:

- **Tracts, Plot Plans, Public Use Permits, Conditional Use Permits, etc.:** Will the Level of Service required by the General Plan be maintained at all affected intersections with the addition of traffic from the proposed project? If not, what mitigation measures will be necessary in order to provide the required Level of Service? If mitigation measures are necessary, are they feasible to implement? Will the project deteriorate traffic operations or safety?

- **General Plan Amendments and Specific Plans:** Will the ultimate circulation system planned for the area be able to provide the required Level of Service, even with the additional traffic impact of the proposed land use changes? If not, what will be required in order to provide the required Level of Service?

3.0 TRAFFIC IMPACT ANALYSIS EXEMPTIONS

Certain types of projects, because of their size, nature, or location, are exempt from the requirement of preparing a TIA. The types of projects that are generally exempt from preparing a TIA are described in Exhibit A.

The Transportation Department, at its discretion, may require that a TIA be prepared for any development, regardless of size, if there are concerns over safety, operational issues, or if located in an area heavily impacted by traffic.

4.0 COORDINATION WITH TRANSPORTATION DEPARTMENT

In order to streamline the TIA preparation and review process, the Engineer shall solicit input and approval for the Transportation Department prior to the preparation and submittal of a draft document. A TIA "Project Scoping Form", attached as Exhibit B, shall be prepared by the Engineer and submitted to the Transportation Department for approval prior to the preparation of a draft TIA. The Project Scoping Form provides for agreement of the following key points before initiating the TIA:

- Determination of study area, intersections, and roadway links to be analyzed.
- Project trip generation, distribution, and assignment.
- Use of other approved projects for background traffic, traffic growth assumptions, or integration with RCIP Model.
- For those projects located within a City's Sphere of Influence or adjacent to a city, the Engineer shall also solicit comments on the above from the City staff. The Engineer shall submit all comments from City staff to the Transportation Department for review and consideration.
- For projects within one mile of a state highway, or any project that may create a significant impact on the state highway, the Engineer shall also coordinate with Caltrans.

5.0 REQUIRED METHODOLOGY

5.1 Intersection Analysis

The Transportation Department requires the use of the Transportation Research Board - Highway Capacity Manual (HCM), 2000 Update, or most recent release. Unsignalized intersections are to be analyzed using Chapter 17 of the Highway Capacity Manual. Signalized intersection Level of Service shall be analyzed using the Operational Method as described in Chapter 16, Section II. Refer to Exhibit C for default input parameters. For default values not specifically provided in Exhibit C, the Engineer shall refer the HCM2000 or most recent release.

5.2 ADT Analysis

The Transportation Department may require that analysis of Average Daily Traffic (ADT) be conducted in certain cases, such as when intersection analyses are not the controlling factor or for general planning purposes.

6.0 AREA TO BE STUDIED

In general, the minimum area to be studied shall include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips, not exceeding a 5-mile radius from the project site. The Transportation Department may require deviation from these requirements based on area conditions.

7.0 ANALYSIS SCENARIOS

7.1 Tracts, Plot Plans, Use Cases, etc.

The TIA shall include the following analysis scenarios:

1) **Existing Traffic.** Existing traffic will be counted to determine current conditions. This constitutes the environmental setting for a CEQA analysis at the time that the hearing body reviews the project. Traffic count data shall be new or recent. In some cases, data up to one year old may be acceptable with the approval of the Transportation Department. Any exception to this must be requested prior to approval of the scoping agreement.

2) **Project Completion** (**existing + ambient + project)**. Traffic conditions prior to the time that the proposed development is completed will be estimated by increasing the existing traffic counts by an appropriate growth rate to be provided by Transportation Department staff, projected to the year that the project is estimated to be completed. Traffic generated by the proposed project will then be added, and the impacts on the circulation system will be analyzed. This will be the basis for determining project-specific impacts, mitigation, and conditions of approval.

3) **Cumulative (existing + ambient + project + cumulative).** Traffic generated by other approved projects in the study area shall be identified and added to the Project Completion traffic identified in Scenario 2. This may also include projects that are proposed and in the review process, but not yet fully approved. This scenario will be analyzed, and a determination made if improvements funded through the TUMF or other approved funding mechanism (DIF, Road and Bridge Benefit District, etc.) can accommodate the cumulative traffic at the target Level of Service (LOS) identified in the General Plan. If the "funded" improvements can provide the target LOS, payment into the TUMF (or other fee structure) will be considered as cumulative mitigation through the conditions of approval. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF facilities) should be identified as such.

4) **Project Phasing.** Traffic conditions at each project phase completion are to be analyzed using the same approach as for the project completion year, if applicable. Traffic associated with each previous project phase shall be included in the analyses of each successive phase of the proposed project.

7.2 Land Use or Circulation General Plan Amendments or Specific Plans

Development proposals that also include a General Plan Amendment, Specific Plan, Zone Change or other approval that increases traffic beyond what was approved in the General Plan will also be required to perform a Build-out Analysis to assess long-term impacts. This analysis will determine if the Circulation Element of the General Plan is adequate to accommodate projected traffic at the target LOS, or if additional mitigation is necessary. A phasing plan for all Specific Plans that identifies mitigation for each development phase is required.

8.0 FUTURE TRAFFIC FORECASTS

8.1 Background Traffic for Tracts, Plot Plans, Use Cases and Project Phasing

All projects within the study area that have received approvals for development (approved plot plans, approved tentative tracts, approved conditional use permits, etc.,) shall be identified, and their traffic generation included as cumulative traffic in the study. Proposed projects in the study area that have been submitted to the County for processing, but not yet approved, may also be included at the discretion of the Transportation Department. The Transportation Department will also specify an ambient growth rate to be applied to existing volumes to account for other general traffic growth in and around the study area.

The traffic from the other approved projects shall be added to the existing traffic plus the ambient growth rate (Analysis Scenario 2) plus the proposed project to determine future projected traffic at "Opening Year" of the project, or any subsequent phase.

8.2 Build-Out Studies for General Plan Amendments and Specific Plans

Traffic projections for Build-out scenarios shall utilize the RCIP traffic model or other approved model. The Engineer shall use the model projections as the basis for determining turning-movement volumes for the required intersection analysis. A manual assignment of the project traffic added to the Build-out traffic may typically be used to determine total future traffic, as approved by the Transportation Department.

Certain large-scale Specific Plans and General Plan Amendments have the potential to create traffic impacts that are significantly greater than the traffic projections used in the RCIP Traffic Model, and which also affect the modeling assumptions. For these projects, the Transportation Department may request that the Build-out analysis utilize the RCIP Traffic Model or other model approved by the Transportation Department to develop more detailed focused model runs in order to determine the projected Build-out traffic. The following are guidelines of projects considered to be significant and subject to the revised modeling requirements:

- 1,500 dwelling units or greater
- 25 acres of commercial or greater
- 150 acres of industrial or greater
- any project producing 15,000 daily trips or greater

9.0 CEQA COMPLIANCE AND DOCUMENTATION

The following types of traffic impacts are considered to be "significant" under CEQA:

1) When existing traffic conditions (Analysis Scenario 1) exceed the General Plan target LOS.

2) When project traffic, when added to existing traffic (Analysis Scenario 2), will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.

3) When cumulative traffic (Analysis Scenario 3) exceeds the target LOS, and impacts cannot be mitigated through the TUMF network (or other funding mechanism), project conditions of approval, or other implementation mechanisms.

The General Plan allows the Board of Supervisors to approve development projects even in instances where the target LOS is exceeded, if the project has overriding benefits. Examples include projects that provide jobs in a local area, projects that provide needed transportation improvements that otherwise would not be constructed, projects that provide habitat conservations, projects that implement non-motorized transportation systems, or projects that provide some unique benefits to the County which outweigh the traffic impacts. These projects are required to mitigate traffic impacts to the extent that it is economically feasible as determined by the Board of Supervisors, based on a value engineering analysis. Projects that have a significant traffic impact and require a finding of overriding benefits may be required to prepare an Environmental Impact Report. The need to prepare an EIR shall be determined through consultation between the Transportation Department, Planning Department, and County Counsel.

10.0 TRAFFIC IMPACT ANALYSIS FORMAT

The format and required elements to be included in the TIA are specified in Exhibit D. Deviations from this format require the approval of the Transportation Department.

The TIA will generally include the following major components, as shown in more detail in Exhibit D and described herein:

- Level of Service analysis
- Proposed mitigation measures
- Traffic signal warrant analysis
- On-site circulation analysis
- Identification of safety and operational improvements

In addition to the above, General Plan Amendments and Specific Plans shall include the following:

- Specific Plan signalization analysis
- General Plan conformance review
- CETAP conformance review
- Identification of regional funding mechanisms

Projects that involve special uses, such as truck-intensive projects or special events, may also be required to perform additional analysis to determine project impacts.

10. 1 Level of Service Analysis

The Riverside County General Plan has established minimum Level of Service standards for developments. These minimums may vary according to the area involved. The Traffic Impact Analysis shall address whether or not the required Levels of Service will be achieved after the proposed project is constructed. Level of Service calculations shall be included with the TIA for all intersections studied. For intersections or roadway links not meeting the required Level of Service, the intersection or roadway link's Level of Service must be recalculated using the proposed mitigation measures to verify that the required Level of Service will be achieved. For sites with heavy truck usage, Passenger Car Equivalents (PCE's) as approved by the Transportation Department shall be utilized in the analysis.

The County's Level of Service standards, as published in the County's General Plan, Chapter 4, are included in the attached Exhibit E.

10.2 Proposed Mitigation Measures

All studies that propose increasing the number of travel lanes on a road or intersection as mitigation measures, either beyond existing conditions or for General Plan conditions beyond what is planned for that level of roadway shall clearly identify the impacts associated with such a change. Identification of funding mechanisms available to fund the improvements and exhibits showing the lane configuration must be provided in the report.

The exhibits illustrating the improvements must be to scale but conceptual in nature (not engineering drawings). The concept illustrations must depict, in addition to existing and required right-of-way, any physical barriers that might preclude making the needed improvements. Barriers that may preclude making the improvements, such barriers as railroads, major drainage structures, power lines, and others must be identified. Any other features that might render the improvements infeasible must also be identified. The objective is to ensure that when Conditions of Approval are written, there will be every expectation that the required improvements will, in fact, be made.

Concept illustrations, as described above, shall be prepared for the following instances:

- All improvements, whether on-site or off-site, necessary to mitigate impacts under Existing plus Ambient Growth, plus Project conditions

- All improvements abutting the proposed project and that are necessary to mitigate impacts under Existing plus Ambient Growth, plus Cumulative Projects, plus Project conditions

- All improvements where the required improvements exceed the number of lanes, under any traffic scenario, that would typically be developed at full implementation of roadways per the General Plan and the standards for the applicable roadway classification.

In all cases the feasibility of the proposed improvements must be demonstrated and the availability of right-of-way must be ascertained. Acquisition of additional right-of-way, if necessary, is the responsibility of the project proponent. If additional right-of-way must be acquired, either adjacent to the project or off-site, the project proponent must follow the procedures described in Ordinance 460, Section 3.2.J.

10.3 Traffic Signal Warrant Analysis

The Engineer shall review intersections within the study area, including the project access points, to determine if signal warrants are met for any of the study year scenarios (existing, opening year with and without project, etc.) The signal warrant analysis shall utilize the Caltrans peak-hour warrants for existing intersections and the Caltrans daily warrant for new intersections. The warrant analysis worksheets shall be included in the study appendices.

If the traffic study states that “a traffic signal is warranted” (or “a traffic signal appears to be warranted,” or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection. This information will enable the County to assess whether or not a traffic signal should be installed at the intersection.

10.4 On-site Circulation

The TIA shall examine the proposed on-site circulation for the project and address its adequacy. This includes identifying the desired level of traffic control at project driveways and/or intersections.

10.5 Safety and Operational Analysis

The TIA shall examine existing roadway conditions to determine if safety and/or operational improvements are necessary due to increase in traffic from the project or cumulative projects. The types of improvements to be identified may include, but are not limited to:

- Need for turning lanes
- Intersections needing future sight distance studies
- Parking restrictions
- Measures to reduce cut-through project traffic in adjacent residential areas
- Potential impacts to adjacent schools
- Queue lengths and impacts to adjacent intersections
- Need for signal interconnect systems

10.6 Specific Plan Signalization Analysis

For traffic signals that are found to be warranted within or bordering a Specific Plan, the TIA shall identify, after consultation with the Transportation Department, which of these signals are the responsibility of development within the Specific Plan and which are covered under the County-wide Signal Mitigation Program.

10.7 General Plan Conformance

The TIA shall identify if the roadway system proposed in the Circulation Element of the General Plan is adequate to accommodate traffic from the project, or if changes to the General Plan are proposed as part of the project approval.

10.8 CETAP Conformance

Riverside County, in conjunction with the Riverside County Transportation Commission, is evaluating various major transportation corridors as part of the Community and Environmental Transportation Acceptability Process (CETAP). The TIA shall identify if a project is located adjacent to a potential CETAP corridor. The traffic study preparer shall contract RCTC to determine if the project is impacted by a potential CETAP corridor.

10.9 Regional Funding Mechanisms

Identify if the project is located within an existing Road and Bridge Benefit District (RBBD), Assessment District, or identified in another regional funding mechanism.

10.10 Special Uses

- **Truck Intensive Uses (Conditional Use Permits, Surface Mining Permits, etc.)**

  In addition to the standard TIA requirements, or if the standard TIA requirements are waived, projects that are "truck intensive" (distribution centers, surface mining permits, etc.,) may be required to submit a study addressing the truck access routes, adequacy of the existing streets to be used (in terms of geometry and structural section), safety issues relating to the truck traffic, and the impacts of the truck traffic on existing residences or businesses.

  The County does not use any trip generation rates for truck intensive uses other than ITE.

- **Special Event Uses**

  Special event land uses that do not exhibit typical trip generation characteristics may require unique analysis, including weekend and off-peak scenarios. Examples of such uses would be sports stadiums, racetracks or uses that exhibit substantial traffic peaking associated with special events that are scheduled on a periodic basis. The traffic analysis for such uses shall include a traffic management plan to control traffic impacts associated with the special events. Adequate circulation shall be provided to the site and all impacts shall be alleviated to the maximum extent possible.

11.0 SUBMITTAL REQUIREMENTS AND PROCEDURE

a) A project scoping form must be submitted for approval prior to preparation of the traffic study. Identification of a Planning case number must be included in order to process the agreement. A Traffic Study Submittal Form, shown as Exhibit G, shall be completed and submitted prior to or simultaneously with the scoping agreement along with the required initial fee of $1,277.04. Based on recent experience, the County has found it necessary to request funds, in addition to $1,277.04, in amounts depending on the complexity of the project. This often results in delays in the Traffic Impact Study report. To avoid such delays, the applicant is advised to contact

Transportation Department staff to get an estimate of the anticipated fee. To avoid potential delays during the review process, the applicant may prefer to pay a larger fee initially than the required amount.

The project scoping form must indicate whether or not the project is part of a Specific Plan (SP) and, if part of an SP, must provide a listing of other approved and active projects within the SP, and whether or not an SP amendment is proposed.

The scoping form must also show the land use designation per the County General Plan and the proposed land use designation. The scoping form provides space to show this information.

b) Upon approval of the scoping agreement and completion of the traffic study report, submit two bound copies of the Traffic Impact Study report to the Transportation Department. Clearly identify the project case number on the cover of the report. Copies of the approved scoping agreement and cumulative projects list as provided by the County shall be included with the copies of the traffic impact study.

c) If revisions to the Traffic Impact Study are necessary, re-submit two (2) complete bound copies along with a copy of the comments provided by the Transportation Department.

Traffic Impact Analysis
Preparation Guide

Exhibits

A. Traffic Impact Analysis Exemptions

B. Scoping Agreement for Traffic Impact Analysis

C. Signalized Intersection Analysis Input Parameters

D. Traffic Impact Analysis Format

E. Level of Service Standards (from General Plan)

F. Traffic Impact Analysis Submittal Form

G. Transportation Consultants

EXHIBIT A

TRAFFIC IMPACT ANALYSIS EXEMPTIONS

The following types of development proposals are generally exempt from Traffic Impact Analysis requirements per Board of Supervisor's action November 5, 1996 (Item No. 3.27.):

1. All Residential Parcel Maps.
2. Single Family Residential Tracts of less than 100 lots.
3. Apartments and other Multiple Family projects of less than 150 units.
4. Plot Plan and Uses Cases for projects of one acre or less.
5. Preschools, Elementary Schools and Middle Schools.
6. Churches, Lodges, Community Centers, Neighborhood Parks and Community Parks.
7. Mini Storage Yards
8. Congregate Care Facilities that contain significant special services, such as medical facilities, dining facilities, recreation facilities and support retail facilities.
9. Level 1 projects (100-200 peak hour trips) in areas where a comprehensive traffic analysis has been performed and road improvement infrastructure funding mechanisms are in place. The Transportation Department may, however, require a traffic impact analysis study for projects that exhibit potential adverse impacts to the circulation system.
10. Any use which can demonstrate, based on the most recent edition of the Trip Generation Report published by the Institute of Transportation Engineers (ITE) or other approved trip generation data, trip generation of less than 100 vehicle trips during the peak hours.

These exemptions will apply **in most cases**, however, the Transportation Department reserves the right to require a traffic impact analysis for any development regardless of size and/or type. The level of analysis shall be determined on an individual basis. The following are examples of conditions under which an exemption would not be granted.

a. The presence of an existing or potential safety problem.

Exhibit A continued

b. The location of the development in an environmentally or otherwise sensitive area, or in an area that is likely to generate public controversy.

c. The presence of a nearby substandard intersection or street. This is normally considered to be an existing Level of Service “D” or worse, or substandard improvements.

d. The need for a focused study for access/operational issues.

e. A request from an affected agency, such as Caltrans or an adjacent city, which is deemed by the Transportation Department to be reasonable and rational.

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated February 2005.

Case No. (i.e. TR, PM, CUP, PP)
Related Cases -
SP No. *Provide SP No. and list of other approved or active projects within the SP.*
EIR No.
GPA No.
CZ No.
Project Name:
Project Address:
Project Description:

	Consultant	Developer
Name:		
Address:		
Telephone:		
Fax:		

A. Trip Generation Source: (ITE 7th Edition or other)

Current GP Land Use *Provide General Plan Land Use Designation (e.g.: MDR, CR, etc)* Proposed Land Use
Current Zoning Proposed Zoning

Current Trip Generation	In	Out	Total	Proposed Trip Generation	In	Out	Total
AM Trips							
PM Trips							

Internal Trip Allowance ☐ Yes ☐ No (% Trip Discount)
Pass-By Trip Allowance ☐ Yes ☐ No (% Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: N % S % E % W %
(attach exhibit for detailed assignment)

C. Background Traffic

Project Build-out Year: *Provide realistic opening year, considering time needed for approvals and construction.* Annual Ambient Growth Rate: %
Phase Year(s)
Other area projects to be analyzed:

Model/Forecast methodology

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

E. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ☐ Yes ☐ No

If so, name of City Jurisdiction: _____

F. Site Plan (please attach reduced copy)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

_____

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts_____

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

_____ _____
Consultant's Representative Date

Approved Scoping Agreement:

_____ _____
Riverside County Transportation Department Date

Scoping Agreement Submitted on _____

Revised on _____

Exhibit C

SIGNALIZED INTERSECTION ANALYSIS INPUT PARAMETERS

PARAMETER	**VALUE**
Base Saturation Flow Rate	1900 pc/hr/ln
Heavy Vehicle factor	Determine % heavy vehicle in existing traffic stream based on count data or consultation with County Transportation Dept. Projects with truck intensive uses must convert project trips to passenger car equivalents (PCE=2). Truck intensive uses include heavy industrial, warehousing or as determined by the Transportation Department.
Grade	Include as appropriate
Exclusive left turn lane	peak hour volume > 100
Dual left turn lanes	peak hour volume > 300
Protected Left Turn Phasing	Left turn volume > 240 vph
Minimum green time	7 seconds each movement in areas of light pedestrian activity. In areas of heavy pedestrian activity, the minimum green shall be calculated based on the methodology in the HCM.
Cycle length	60 sec to 120 sec
Lost time	Per HCM Exhibit 10-17 (below)

Major street	**Minor Street**	**Number of Phases**	**L (s)**
Protected	Protected	4	16
Protected	Permitted	3	12
Permitted	Protected	3	12
Permitted	Permitted	2	8

* All above values are from HCM2000 Chapters 10 and 16. Any deviation from these parameters requires prior approval from Riverside County Transportation Department. Refer to HCM2000 for any default values not specifically identified here.

Intersection analyses should be conducted utilizing acceptable software based on HCM methodology. Closely spaced intersections are to be analyzed using analysis tools capable of accounting for turn lane storage, queue length, blockage, etc. such as Synchro.

Actual signal timing and peak hour factors should be collected in the field and utilized in the existing and near-term analyses. In cases where traffic is added from a significant number of cumulative projects, the consultant shall use their engineering judgment in the application of peak hour factors to maintain consistency with the existing conditions analyses. A peak hour factor of 1.0 shall be applied to buildout traffic conditions.

Exhibit D

Traffic Impact Analysis Format

The Traffic Impact Analysis shall generally include the following items, unless waived by the Transportation Department. Required ***Exhibits*** and ***Tables*** are indicated.

I. Introduction

A. Purpose of the TIA and Study Objectives

B. Site location and study area ***(Exhibit 1)***

C. Development project identification - Riverside County Case Number and related case numbers, i.e. S.P.A. amendment number, E.I.R. number, etc.

D. Development project description

1) Project size and description

2) Existing land use and zoning

3) Proposed land use and zoning

4) Site plan of proposed project (reduced) ***(Exhibit 2)***

5) Proposed project opening year

6) Any proposed project phasing

7) Indicate if project is within a City Sphere of Influence

II. Area Conditions

A. Identify Study Area and Intersections

B. Existing traffic controls and intersection geometrics ***(Exhibit 3)*** - include descriptions of existing roads (number of lanes, etc.)

C. Existing traffic volumes - AM and PM peak hour turning movements and roadway links (if required) (***Exhibit 4A - AM and Exhibit 4B -PM)***

Exhibit D continued

D. Existing delay and Level of Service at study intersections/roadway links ***(Table 1)***

E. Provide copy of General Plan Circulation Element in the project vicinity ***(Exhibit 5)***

F. Indicate if Transit service is available in the area and along which routes

III. Projected Future Traffic

A. Project Traffic and Project Phasing (each study year)

1. Ambient growth rate

2. Project Trip generation ***(Table 2)*** - (the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation Report). Other sources require prior approval by the Transportation Department

3. Project Trip distribution and assignment ***(Exhibit 6)***

4. Other factors affecting trip generation (identify any factors used to adjust trip generation, such as pass-by trips, internal trips, or modal choice. Use of any factors require prior approval by the Transportation Department and should be based on accepted traffic engineering documentation such as trip generation manual or other.

5. Project peak hour turning movement traffic ***(Exhibit 7A & 7B - AM and PM)***

6. Project completion or phase completion traffic volumes ***(Exhibits 8A and 8B – AM and PM, for project or Phase I completion, 8C and 8D for Phase II, etc.)***

C. Cumulative Traffic (background)

1. Ambient growth rate

2. Identify location of other approved or proposed development projects ***(Exhibit 9)***

3. Trip generation from other approved projects ***(Table 3)***

4. Trip distribution and assignment of other approved development projects ***(Exhibits 9A, 9B, etc.)***

5. Total background peak hour turning movement volumes ***(Exhibits 10A & 10B – AM and PM)***

Exhibit D continued

IV. Traffic Analysis

A. Capacity and Level of Service and Improvement Analysis

1. Delay and Level of Service for existing traffic conditions without project, with existing improvements ***(Table 4)***

2. Delay and Level of Service at study years with project, with existing and committed improvements (funded for construction) ***(Table 5)***

3. Delay and Level of Service at study years with additional improvements (if required to achieve the General Plan required Level of Service) ***(Table 6)***

4. Delay and Level of service under Cumulative conditions, with existing and committed improvements (funded for construction) and without and with additional improvements ***(Tables 7 and 8)***

V. Findings and Recommendations

A. Traffic Impacts and Level of Service Analysis

1. Proposed mitigation measures to achieve LOS at impacted intersections **(list as Table 9 and also show graphically as Exhibit 11)** Identify if improvements are scheduled for construction, funded for future implementation by a regional mechanism, or not funded.

B. Traffic signal warrant analysis - indicate intersections found to meet signal warrants at study year and share of project traffic contribution (use peak hour for existing intersections and daily for new intersections).

C. Circulation recommendations

1. On-site

2. Area wide - provide exhibit showing roadway improvements and signal locations ***(Exhibit 12)***

3. Phasing (if appropriate)

D. Safety and operational improvements

E. Specific Plan signalization analysis (for Specific Plans only)

Exhibit D continued

F. General Plan Conformance (for Specific Plans and General plan amendments only) ***(show any proposed General Plan Amendments as Exhibit 13)***

G. CETAP Conformance ***(show any CETAP corridors adjacent to project as Exhibit 14)***

H. Identify existing or proposed Regional funding mechanisms

Exhibit E

Level of Service Standards

Refer to County General Plan, Chapter 4, Pages C-9 and 10

TRAFFIC STUDY SUBMITTAL FORM

THIS FORM MUST BE SUBMITTED WITH THE FIRST SCOPING AGREEMENT

RIVERSIDE COUNTY TRANSPORATION
4080 Lemon Street, 8th Floor
Riverside, CA 92501
PHONE (951) 955-6761 FAX (951) 955-0049

PROJECT INFORMATION

PARENT CASE # (TR, PM, PP, CUP, SP, PAR)	
FAST TRACK NUMBER (IF APPLICABLE)	**RELATED CASES (IF APPLICABLE)**
PROJECT NAME	
DESCRIPTION	
LOCATION (CROSS STREETS OR ADDRESS)	
APN	**THOMAS BROS. PAGE/GRID**

ENGINEERING FIRM

NAME	
ADDRESS	
CITY/STATE/ZIP CODE	
DESCRIPTION	
CONTACT PERSON	**E-MAIL**
PHONE	**FAX**

APPLICANT

NOTE: THE APPLICANT WILL RECEIVE ALL BILLINGS, CORRESPONDENCE & REFUNDS FOR DEPOSIT BASED FEES.

NAME	
ADDRESS	
CITY/STATE/ZIP CODE	
DESCRIPTION	
CONTACT PERSON	**E-MAIL**
PHONE	**FAX**

OWNER

NAME	
ADDRESS	
CITY/STATE/ZIP CODE	
DESCRIPTION	
CONTACT PERSON	**E-MAIL**
PHONE	**FAX**

IF THE ENGINEER, APPLICANT OR OWNER CHANGES, IT IS THEIR RESPONSIBILITY TO LET THE RIVERSIDE COUNTY TRANSPORTATION KNOW, AS IT WILL MISDIRECT THE REFUND AT THE END OF THE PROJECT.

PRINT NAME	**SIGNATURE**	**DATE**

Exhibit G

TRANSPORTATION CONSULTANTS

The following firms are recognized by the Riverside County Transportation Department as competent, professional traffic engineering and/or transportation planning entities that have done work in Riverside County. This list is provided for informational purposes only and does not constitute a requirement to use consultants only on this list.

1. ADVANTEC Consulting Engineers
   21700 Copley Drive, Ste. 350
   Diamond Bar, CA 91765
   Betsy Scott, Marketing Dir./Ofc. Mgr.
   (909) 860-6222 FAX: (909) 860-6722

2. Albert A. Webb Associates
   3788 McCray Street
   Riverside, CA 92506
   Dilesh Sheth, Traffic Engineer
   (909) 686-1070 FAX (909) 788-1256

3. Robert Crommelin & Associates, Inc.
   73-255 El Paseo, Ste. 9
   Palm Desert, CA 92260
   Robert W. Crommelin P.E. (FL)
   (760) 568-6838 FAX (760) 568-9850

4. Darnell & Associates, Inc.
   1446 Front Street Ste. 300
   San Diego, CA 92101
   Bill E. Darnell, P.E.
   (619) 233-9373 FAX (619) 233-4034

5. Endo Engineering
   28811 Woodcock Drive
   Laguna Niguel, CA 92677-1330
   Gregory Endo, Principal
   (949) 362-0020 FAX (949) 362-0015

6. Albert Grover & Associates
   211 E. Imperial Highway, Ste. 208
   Fullerton, CA 92835
   New Cases: Rob Kuehn
   (714) 992-2990 FAX (714) 992-2883

7. KOA Corp.
   Mujib Ahmed, P.E.
   3190 C Shelby Street
   Ontario, CA 91764
   (909) 890-9693 FAX (909) 890-9694

8. Kimley-Horn and Associates, Inc.
   765 The City Drive, Suite 400
   Orange, CA 92868
   Serine A. Ciandella, AICP
   (714) 939-1030 FAX (714) 938-9488

9. Krueper Engineering & Associates, Inc.
   568 N. Mt. View Avenue, 2nd Floor
   San Bernardino, CA 92401
   Harry Krueper, P.E.
   (909) 884-2159 FAX (909) 888-8910

10. Kunzman Associates
    1111 Town & Country, Ste. 34
    Orange, CA 92868
    William Kunzman, PE, Senior Principal
    Carl Ballard, Senior Associate
    (714) 973-8383 FAX (714) 973-8821

11. Linscott Law & Greenspan Engineers
    1565 Hotel Circle South, Ste. 310
    San Diego, CA 92108
    John Keating, P.E., Principle
    (619) 299-3090 FAX (619) 299-7041

12. LSA Associates, Inc.
    1500 Iowa Ave., Suite 200
    Riverside, CA 92507
    (951) 781-9310 FAX (951) 781-4277

13. Iteris, Inc.
707 Wilshire Boulevard, Ste. 4810
Los Angeles, CA 90017
Michael Meyer, T.E.
(213) 488-0345 FAX (213) 488-9440

14. Parsons Brinkerhoff
505 S. Main Street, Ste. 900
Orange, CA 92868
(714) 973-4880 FAX (714) 973-0358

15. P&D Consultants, Inc.
999 Town & Country Road, 4th Floor
Orange, CA 92868
Michael Benner, P.E.
(714) 835-4447 FAX (714) 285-0740

16. RBF Consulting
14725 Alton Parkway
Irvine, CA 92618
Carlos Ortiz, P.E.
(949) 472-3505 FAX (949) 472-8373

17. R.K. Engineering Group
3991 MacArthur Boulevard, Ste. 310
Newport Beach, CA 92660
Robert Kahn, P.E., Principal
(949) 474-0809 FAX (949) 474-0902

18. Rick Engineering
1223 University Ave., Suite 240
Riverside, CA 92507
Kathy Barosko
(951) 782-0707 FAX: (951) 782-0723

19. TEP
P.O. Box 18355
Irvine, CA 92623
Craig Neustaedter
(949) 552-4357 Cell (909) 263-0383
FAX (909) 494-4408
tepirvine@sbcglobal.net

20. Traffic Safety Engineers
3100 Marywood Drive
Orange, CA 92867
C. Hui Lai, P.E., Traffic Engineer
(714) 974-7863 FAX (714) 974-1043

21. Urban Crossroads
41 Corporate Park, Ste. 300
Irvine, CA 92606
John Kain, AICP
(949) 660-1994 FAX (949) 660-1911

22. URS/BRW
2020 E. 1st Street, Ste. 400
Santa Ana, CA 92705
Doug Smith, P.E.
(714) 835-6886 FAX (714) 667-7147

23. Wilbur Smith Associates
900 Wilshire Blvd., Suite 930
Los Angeles, CA 90017
Sam Morrissey
(213) 627-3855 FAX (213) 627-3859

24. Willdan
2401 East Katella Ave., Suite 450
Anaheim, CA 92806
Lewis Gluesing
Division Manager, Traffic Engineering
(714) 978-8200 FAX (714) 978-8299