SAN JOAQUIN COUNTY
TRAFFIC IMPACT STUDY GUIDELINES
NOVEMBER 2008

PURPOSE

The purpose of the San Joaquin County Traffic Impact Study Guidelines is to establish general procedures and requirements for the preparation of traffic impact studies associated with development within San Joaquin County.

WHEN TRAFFIC STUDIES ARE REQUIRED

Unless waived by the Director of Public Works, a Traffic Impact Study (TIS) will be required by the County to adequately assess the impacts of development projects on the existing and/or planned street system, as indicated in Section 9-1150.4 of the San Joaquin County Development Title, adopted July 29, 1992, and Section 2.31 of the Improvement Standards for San Joaquin County, revised May 1997, or any amendments thereto. These requirements, generally stated are:

1. When project-generated traffic is expected to be greater than fifty (50) vehicles during any hour. A traffic impact study will not be required for less than fifty (50) vehicles per hour, unless justified by special circumstances.

2. A supplemental traffic impact study may be required if the property use is changed so that the average daily trip generation is increased by more than 15 percent or a minimum of 50 vehicle trips, whichever is less, over that indicated in an existing traffic study that is less than two years old.

A traffic impact study requires updating when it has been two or more years since the existing traffic impact study was completed. After two years the existing TIS is considered antiquated and irrelevant.

The project proponent(s) and/or applicant(s) shall deposit (to San Joaquin County) funds sufficient in amount to prepare, or contract for preparation at the County's option, the required traffic impact study.

TRAFFIC IMPACT STUDY AREA

The area to be covered by traffic impact studies will be determined on a case-by-case basis and shall be sufficient in size to include all existing and planned adjacent and regional facilities determined to be impacted by the development project. The scope of the traffic impact study, including the study area, shall be reviewed and approved by County staff prior to preparation of the study.

LEVELS OF SERVICE

As defined in the San Joaquin County 2010 General Plan, adopted in July 1992, all County

roadways shall operate at LOS C or better (except in a City sphere of influence where the City has adopted LOS D); intersections shall operate at an overall LOS D or better on minor arterials and roadways of higher classification; and LOS C on all other roads; all freeways and State highways shall operate at LOS D. Per Caltrans, all state facilities shall operate at LOS C in rural areas and LOS D in urban areas. All roadways within a local city's jurisdiction shall conform to that city's current LOS standards. The LOS of any County road within a city's sphere of influence shall be determined by County staff and documented appropriately in the study. The methods contained in the "Transportation Research Board, 1997 Highway Capacity Manual" (or latest edition) shall be used to determine the LOS. All County roadway segments shall be analyzed per the HCM as Class II roadways unless otherwise approved by the County.

GROWTH ASSUMPTIONS AND TRAVEL FORECASTING

Cumulative conditions are assumed to occur in 2025 unless stated otherwise in the Traffic Impact Study. When determining cumulative traffic conditions and projections, the consultant should use the Regional Computer Traffic Model that is maintained by the San Joaquin Council of Governments.

The Council of Governments' model is a regional model and as such, does not contain some of the rural intersections and roadways that may be included in the scope of a traffic impact study. In cases such as this, a "per year" growth rate (derived from adjacent intersections and roadways that are included in the model) may be applied to existing conditions at the intersection or roadway to simulate cumulative conditions.

Similarly, if the data obtained from the model seems unreasonable for the project area in terms of existing conditions and expected growth rate, a per year growth rate may be used to approximate cumulative conditions. Any growth factor shall be added to the Existing Plus Approved and Significant Pending Projects scenario to derive approximate cumulative conditions. An explanation of any methodology and calculations that deviate from these guidelines shall be included in the report.

No further analysis work shall continue on the Traffic Impact Study until after the project trip distribution and growth rate, if applicable, has been approved by County staff.

TRAFFIC COUNTS

A list of locations where traffic counts will be taken shall be submitted (within the proposed scope of work) to the San Joaquin County Department of Public Works for approval.

In general, the peak hour volumes to be analyzed will include both the A.M. (typically 6:00 a.m. to 8:00 a.m.) and P.M. (typically 4:00 p.m. to 6:00 p.m.) peak periods; however, these peak periods may be modified or other periods may also be required, as necessary, for complete analysis. The days on which peak hour volumes are to be analyzed will be determined on a case-by-case basis.

TRAFFIC PROJECTIONS

"Trip Generation," Eighth Edition, or latest edition, by the Institute of Transportation Engineers, shall be used to determine traffic projections for required traffic studies. Special traffic

generators (schools, hospitals, etc.) shall be considered when determining traffic projections.

Traffic projections shall include the scenarios, as listed in Section IV-C of the "San Joaquin County Traffic Study Guidelines Report Outline." No reductions are to be taken for TSM programs or for senior housing. Pass-By and Diverted Link Trips shall be approved by County staff.

MITIGATION MEASURES

Mitigation measures must be included in the traffic impact study for each of the following conditions:

Existing Plus Approved and Significant Pending Projects Plus Project Condition

If the LOS for this condition exceeds the County's LOS standards, then mitigation measures that would improve the LOS to an acceptable level must be identified. LOS must be expressed in terms of delay in seconds for intersections, and vehicles per hour for roadway segments, in addition to the corresponding letter (A - F) designation.

If the LOS for conditions at a given location is already at an unacceptable LOS, then the impacts must be assessed in terms of 'v/c ratio' (for roadway segments) or 'delay' (for intersection approaches). If the 'v/c ratio' for a roadway segment, under 'existing plus approved and significant pending plus project' conditions, exceeds the v/c ratio for the same roadway segment under 'existing' conditions then mitigation measures that would return the 'v/c' ratio to the 'existing' level must be identified. Similarly, if the 'delay' at a given intersection approach under 'existing plus approved and significant pending plus project' conditions exceeds the 'delay' for the same intersection approach under 'existing' conditions, then mitigation measures that would return the 'delay' to the 'existing' level must be identified.

Cumulative (2025) Plus Project Condition

If the LOS for this condition exceeds the County's LOS standards, then mitigation measures that would improve the LOS to an acceptable level must be identified. LOS must be expressed in terms of delay in seconds for intersections, and vehicles per hour for roadway segments, in addition to the corresponding letter (A - F) designation.

If the LOS for conditions at a given location is already at an unacceptable LOS, then the impacts must be assessed in terms of 'v/c ratio' (for roadway segments) or 'delay' (for intersection approaches). If the 'v/c ratio' for a roadway segment, under 'cumulative plus project' conditions, exceeds the 'v/c ratio' for the same roadway segment under 'cumulative' conditions then mitigation measures that would return the v/c ratio to the 'cumulative' level must be identified. Similarly, if the 'delay' at a given intersection approach under 'cumulative plus project' conditions exceeds the 'delay' for the same intersection approach under 'cumulative' conditions, then mitigation measures that would return the 'delay' to the 'cumulative' level must be identified.

A potential impact to a study intersection shall not be automatically considered "not significant"

if it does not meet the peak hour signal warrant. If a signal is not warranted, other methods of mitigation (channelization, roundabout, etc.) shall be investigated and discussed with County staff. The impact will only be considered "not significant" after approval of County staff. In addition, the County does not use the "five second rule"; any increase in delay at an intersection must be addressed.

For project impact analysis and identification of mitigation measures, the traffic impact study must consider all existing applicable legislation and all forms and modes of transportation (including bicycle and pedestrian) and improvements (including roundabouts). In addition to identifying mitigation measures, the report should also determine the project's fair share responsibility at study locations in the cumulative plus project scenario. The project's fair share responsibility should be determined by dividing the number of 'project generated trips' at a location by the difference of cumulative trips minus existing plus approved project trips. The project's fair share responsibility must be expressed in terms of both percentage (%) and dollar ($) amount. If both AM and PM peak hour impacts are identified, the fair share shall be the average of the two.

FAIR SHARE RESPONSIBILITY

$$P = \frac{T}{Tb - Te}$$

Where:

P = The equitable share for the proposed project's traffic impact.

T = The vehicle trips generated by the project.

Tb = Cumulative Conditions expected to occur in the year 2025.

Te = Existing Plus Approved Projects

REPORT FORMAT

Traffic Impact Studies shall follow the format of the attached "San Joaquin County Traffic Impact Study Guidelines Report Outline." The report shall be prepared under the direction of a Registered Engineer and shall contain that Engineer's Stamp and signature.

SAN JOAQUIN COUNTY
TRAFFIC IMPACT STUDY GUIDELINES
REPORT OUTLINE
NOVEMBER 2008

I. PROJECT DESCRIPTION

A. Description of the proposed project

B. Location Map

C. Square footage by use, staging/phasing, if any.

D. Site Plan (if available) showing:

1. Auto, transit, bicycle, pedestrian and service vehicle access.

2. Parking facilities (number of spaces, dimensions and circulation patterns).

3. Any proposed sidewalk/street improvements.

E. Definition of peak hour for project (time of day and day of week).

II. TRAFFIC IMPACT STUDY AREA

A. Define traffic impact study areas.

B. Define/list locations of intersections and roadways to be studied. Proposed project access must be considered as a study intersection.

C. List locations where counts were taken.

III. EXISTING CONDITIONS (in the vicinity of the project)

A. Street System

1. Levels of Service (LOS) on significant streets (local and regional, if appropriate) within the study area.

2. Number of lanes / configuration for streets and intersections.

3. Traffic volumes (ADT) within the study area.

4. A. M. and P. M. peak hour level of service at critical intersections.

5. Amount of truck vs. automobile traffic. If a significant amount of truck

traffic exists (>10 percent), the truck trips and passenger car trips must be tabulated separately. The truck trips must be converted to passenger car equivalents and added to the passenger car trips for the purpose of computing LOS.

6. Existing transit services or bike facilities.

7. Approved and significant pending projects (to be supplied by County Staff or other appropriate jurisdictions).

IV. IMPACT ANALYSIS

A. Trip Generation of Project

1. Average daily and A.M. and P.M. peak hour trip generation.

2. Geographic distribution of trips (Trips should be represented in Table and Diagram format, as appropriate)

B. Projections

1. Trip generation of approved projects and baseline growth.

2. Traffic volumes in forecast year.

3. Projected traffic generation.

4. Amount of truck vs. automobile traffic. If a significant amount of truck traffic exists (>10 percent), the truck trips and passenger car trips must be tabulated separately. The truck trips must then be converted to passenger car equivalents and added to the passenger car trips for the purpose of computing LOS. If the project is expected to generate significant amounts of pass-by or diverted link trip, appropriate documentation shall be included.

C. Intersection and Roadway LOS for the following scenarios (Data to be represented with Tables, Diagrams, Figures, as appropriate):

-Existing Conditions
-Existing plus Approved and Significant Pending Projects
-Project Only
-Existing plus Approved Projects plus the Project
-Cumulative 2025 (without project)
-Cumulative 2025 Plus the Project

D. Traffic Impact Analysis (with and without project)

1. Peak hour LOS at critical signalized intersections.

2. Critical corridor analysis.

3. Delay/signal warrants and LOS/other controls at critical non-signalized intersections.

4. Impacts on nearby rail crossings, bikeways and pedestrian ways.

E. Transportation Impacts of Construction (when requested by County)

1. Street/sidewalk closure.

2. Circulation impacts.

F. Policy Implications (when requested by County)

1. Consistency of project with current County plans and policies.

V. ALTERNATIVES (when requested by County)

A. Traffic impacts of selected alternatives to project.

VI. MITIGATION MEASURES

A. Recommended measures for mitigating onsite and offsite adverse transportation impacts of the project. Levels of Service and other appropriate parameters to be estimated, where applicable, for each mitigation measure.

B. Discussion of the need for and role of transit and transportation systems management (TSM) in mitigating adverse impacts.

C. Determine the project's fair share (cumulative scenario only) towards needed improvements at impacted locations by calculating the percentage (%) of peak hour project trips at the impacted locations.

D. Recommended mitigation measures must consider bicycle and pedestrian facilities.

E. Recommended mitigation measures for intersections should consider a roundabout alternative.

F. Provide a short summary describing the impacts and the mitigation measures.

G. Any warrant sheets referenced in the TIS shall be attached.

VII. ENGINEER'S STAMP

A. The report shall contain a Registered Engineer's Signature Stamp.