RESOLUTION NO. 13-112

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES ADOPTING TRAFFIC IMPACT ANALYSIS GUIDELINES

WHEREAS, major land development projects that are subject to the California Environmental Quality Act (CEQA) typically require a traffic impact analysis; and

WHEREAS, the City anticipates several significant land development projects to come forward within the next few that will require the preparation of environmental documents and traffic impact analyses; and

WHEREAS, an action item of the Circulation Element of the General Plan calls for the draft of transportation impact study guidelines in order to provide transportation planning and engineering consultants with consistent and predictable set of performance parameters and thresholds for the identification of traffic impacts and mitigation measures; and

WHEREAS, Fehr and Peers, transportation consultants, have prepared Traffic Impact Analysis Guidelines consistent with Circulation Element policy; and

WHEREAS, the Guidelines have been available for public comment since May 7, 2013, and only minor comments have been received. Said comments have been incorporated into the transportation impact study guidelines.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of El Paso de Robles does hereby approve of and adopt Traffic Impact Analysis Guidelines as attached as Exhibit "A".

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 6th day of August, 2013 by the following vote:

AYES: Hamon, Steinbeck, Martin, Strong, Picanco
NOES:
ABSTAIN:
ABSENT:

Duane Picanco, Mayor

ATTEST:

Caryn Jackson, Deputy City Clerk

FINAL Report:

Transportation Impact Analysis Guidelines City of El Paso de Robles

Submitted to: **City of El Paso de Robles**

Submitted by: **Fehr & Peers**
160 W. Santa Clara Street
Suite 675
San Jose, CA 95113
408 278 1700

July 2013

SJ12-1329

FINAL REPORT

TRANSPORTATION IMPACT ANALYSIS GUIDELINES

CITY OF EL PASO DE ROBLES

Prepared for:

City of El Paso de Robles

Prepared by:

Fehr & Peers

JULY 2013

SJ12-1329

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I. INTRODUCTION

Transportation impact analysis (TIA) guidelines are routinely established by jurisdictions to assist applicants with assessing potential transportation effects of proposed projects on the local transportation system. The following guidelines have been developed to provide a clear and consistent technical approach to transportation improvement and operational analysis for projects within Paso Robles' jurisdiction.

> **Transportation Impact Analysis (TIA)**
>
> TIAs evaluate the potential (adverse and beneficial) effects of proposed projects on the surrounding transportation infrastructure and services. They determine adverse effects and identify acceptable transportation improvements.

This document establishes protocol for transportation impact analysis and reports based on the current state-of-the-practice in transportation planning and engineering. The City expects these guidelines to result in studies that provide comprehensive and accurate analyses of potential effects (adverse and beneficial) on transportation facilities and services in the City and other jurisdictions, as appropriate. This information is essential for decision-makers and the public when evaluating individual development and transportation infrastructure projects.

PROJECT TYPES

A transportation impact analysis is prepared for a project before a discretionary action is approved. The following types of projects, which involve development activity in and around the City of Paso Robles and affect the adjacent transportation system, may require a TIA.

- **Transportation infrastructure modification or expansion**, including capital improvement projects on City roads, County roads and state highways that may impact City facilities and services.
- **Land use entitlements** requiring discretionary approval by the City of Paso Robles, which includes annexations, General Plan amendments, specific plans, zoning changes, planned developments, and tentative subdivision maps.
- **Land use activity** advanced by agencies other than the City of Paso Robles that is subject to jurisdictional review under state and federal law.
- **Land use activity** advanced by agencies other than the City of Paso Robles that is inconsistent with the City's General Plan.

Chapter VI identifies specific project parameters or "triggers" that may necessitate a TIA.

INTENT OF TIA GUIDELINES

It is a primary goal of the City to provide a safe and efficient transportation system for the citizens of Paso Robles. This is done pursuant to the policies of the General Plan and in conformance with the California Environmental Quality Act (CEQA). The intent of these guidelines is to provide a consistent approach for determining the need for a transportation analysis, its content, and identify acceptable transportation improvements for land use and transportation projects proposed within Paso Robles. The TIA guidelines establish protocol for impact analysis based on the current state-of-the-practice for the following:

- General Plan context for transportation impact review
- Need for a transportation analysis
- Impact analysis methods
- A vehicle miles traveled (VMT) monitoring procedure
- Mobility deficiency criteria and thresholds for Paso Robles and other affected agencies (e.g., San Luis Obispo County, and Caltrans)
- Guidance on acceptable transportation improvements based on General Plan policies.

City staff will primarily review transportation studies and reports based on the guidelines presented in this document. ***However, each project is unique, and TIA guidelines are not intended to be prescriptive beyond practical limits. Not all criteria and analyses described in this document will apply to every project. Early and consistent communication with the Community Development Department staff is encouraged to confirm the type and level of analysis required for each study.***

GENERAL PLAN CONTEXT

The TIA Guidelines are crafted to assist with implementation of the Circulation Element of the City General Plan. The *City of El Paso de Robles General Plan 2011 Circulation Element*[1] was updated in 2011 to guide future decision-making regarding transportation in the City of Paso Robles. The goal of the Circulation Element is to:

> **Goal CE-1:** Establish a safe, balanced, efficient, and multimodal circulation system, focusing on the mobility of people, and preserving the City's small town character and quality of life.

For projects that are consistent with the General Plan, the impact analysis is generally limited to an evaluation of the project access points, intersections of two major roadways where 50 or more new project trips will be added during the peak hour, and connectivity to the existing adjacent bicycle, pedestrian, vehicle, and transit facilities.

The *General Plan 2011 Circulation Element* specifically requires the development and adoption of TIA guidelines that consider all modes of travel and establish clear guidance for analysis and mobility criteria (Policy CE-1A Action Item 11).

[1] *City of El Paso de Robles General Plan 2011 Circulation Element*, City of El Paso de Robles, February 2011.

II. DETERMINING THE NEED FOR A TRANSPORTATION ANALYSIS

Do I need to conduct a transportation analysis?

Unless explicitly waived by the City, a TIA may be required when any one of the following conditions is met.

- The project has the potential to create a significant transportation environmental impact under CEQA.
- The proposed project has the potential to generate 50 net new passenger vehicle trips during the morning or evening peak hour or a passenger car equivalent number for truck trips (see **Appendix C**: FHWA Vehicle Classification Definitions for FHWA vehicle classification definitions).
- The project will substantially alter physical or operational conditions on a City pedestrian facility, bicycle facility, transit facility or service, or other transportation facility.
- City staff determines that the level of controversy surrounding a project will require a TIA to address community concerns.

In general, a TIA is applicable for two years. After two or more years of inactivity, a TIA may need to be updated to reflect changes in the study environment including traffic growth and other circulation issues.

RECOMMENDED PROCESS AND DOCUMENTATION

The project applicant shall retain a professional transportation engineer to conduct the transportation impact analysis. The applicant's consultant should conduct the work in the following phased manner and seek City acceptance before initiating each subsequent task. In some cases, review by other affected jurisdictions will be required.

- **Prepare the Transportation Analysis Scope of Work** detailing project description, site location, analysis method, area-wide assumptions, study intersections and/or roadways, peak hours for analysis, and traffic data collection.
- **Estimate Project Trip Generation and Trip Distribution** and document all key technical assumptions, data sources, and references.
- **Prepare an Administrative Draft TIA Report** based on the Scope of Work, Project Trip Generation, and Trip Distribution, and other technical assumptions approved by the City.
  - If the report information will be incorporated into the transportation and circulation section of an environmental document (e.g., Initial Study, Mitigated Negative Declaration or Environmental Impact Report), the format of this report may need to be discussed with the environmental consultant, a peer reviewer, or City staff if a second, independent analysis report is required.
- **Draft TIA Report** addressing the City's comments on the Administrative Draft Report.

- **Final TIA Report / Response to Public Comments** addressing comments from the City, Caltrans, San Luis Obispo Council of Governments (SLOCOG), San Luis Obispo County and other jurisdictions as applicable.
  - The format of this report may need to be discussed with the environmental consultant. It may be a final report incorporating the comments or written responses to public comment.

Appendix A: TIA Report Format Outline contains a recommended outline for the TIA document.

Contact with Appropriate City Staff

To minimize the potential for delays in project processing, it is important for the TIA to be prepared in close coordination with City transportation and planning staff. Timely coordination will also ensure that potential environmental consequences are considered as early as possible in the planning process as deficiencies and corresponding improvement costs can have a substantial effect on project costs. Coordination should include:

- A pre-application meeting, which will include a discussion of the TIA requirements.
- Development of an approved scope of work, which includes trip generation, study area, analysis scenarios and parameters, data requirements, and provisions for pedestrian, bicycle and transit modes.
- Review of all assumptions and the results of Existing Conditions analysis.
- Review of the administrative draft report, with adequate time for comments.

Consultation with Other Jurisdictions

If the study area overlaps with other jurisdictions, staff from other jurisdictions must be consulted to verify study locations, to verify the impact significance criteria that should be used in the TIA for these locations and to consider any current development applications in the adjacent jurisdiction that may impact Paso Robles transportation facilities. Section 15086 of the CEQA Guidelines[2] shall be followed as the basis for satisfying consultation requirements. In most cases, overlap will occur for roadway system analysis but may also include impact analysis of active transportation modes (bicycling and walking), as well as transit system facilities and services. **Appendix B**: LOS policies of Neighboring Jurisdictions contains information on LOS policy thresholds for Caltrans, and San Luis Obispo County. Roadway crossings of rail lines are another overlap area that requires coordination with the Public Utilities Commission (PUC). The focus of any analysis related to rail crossings should be on whether the current crossing complies with current design standards.

PROJECT TRIP GENERATION

Trip generation rates are a way to estimate the number of expected vehicle (and in some cases pedestrian, transit, and bike) trips that a proposed development will cause. These rates establish the basis of analysis for a proposed project and its likelihood of impacting the transportation network.

[2] *The California Environmental Quality Act Guidelines*, California, revised March 18, 2010.

The state-of-the-practice is that trip generation rates be derived from local empirical data, as this will provide the most accurate forecast for future land use vehicle trip making. This requires surveying a similar existing land use at typically three unique locations to quantify the number of daily and morning, mid-day and evening peak period vehicle trips generated.

The City understands that trip generation surveys may not be practical and Institute of Transportation Engineers (ITE) Trip Generation manual can be a reasonable alternative. In the absence of empirical studies, the most recent rates published by ITE in Trip Generation[3] or the San Diego Association of Governments (SANDAG) in their Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region[4] may be used for trip rate estimation. When using ITE rates, the time period selected should reflect peak travel periods on adjacent streets and care shall be exercised in utilizing rates developed from a small study size or containing a low R^2 value. R^2 is the coefficient of determination and is defined as the percent of variance in the number of trips associated with the variance in the size of the independent variable. R^2 is expressed on a scale of 0 to +1. The closer to +1 the R^2 is, the better the correlation between the variables.[5] In some cases, the peak hour of the generator may occur outside the typical peak commute hours and may require additional analysis (e.g., a regional shopping center on a Saturday). Refer to **Table 1** for sample project trip generation estimates. The City reserves the right to require project sponsor to

TABLE 1: SAMPLE EVENING PEAK HOUR TRIP GENERATION ESTIMATE FOR VARIOUS DEVELOPMENT TYPES

Proposed Development Example (ITE Number)	ITE PM Peak Hour of Adjacent Street Traffic Trip Generation[1]
Single Family Detached Housing (210) – 20 dwelling units	20
General Office Building (710) – 20 KSF gross floor area	30
Shopping Center (820) – 50 KSF leasable area	187[2]
General Light Industrial (110) – 10 KSF gross floor area	10
Fast-Food with Drive-Through Window (934) – 2 KSF gross floor area	65[3]

Notes:
[1] *Trip Generation* (9th *Edition*), Institute of Transportation Engineers, 2012.
[2] Pass-by rates for shopping centers published in *Trip Generation Handbook: An ITE Recommended Practice*, Institute of Transportation Engineers, 2012, indicate a pass-by reduction of 34%, potentially reducing this trip generation to 123 PM peak hour trips.
[3] Pass-by rates for fast-food with drive-through restaurants published in *Trip Generation Handbook: An ITE Recommended Practice*, Institute of Transportation Engineers, 2012, indicate a pass-by reduction of 49%, potentially reducing this trip generation to 32 PM peak hour trips.
KSF = 1,000 square feet

[3] *Trip Generation (9th Edition)*, Institute of Transportation Engineers, 2012.
[4] *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, San Diego Association of Governments, April 2002.
[5] *Trip Generation Handbook: An ITE Recommended Practice* (9th Edition), Institute of Transportation Engineers, 2012.

conduct local trip generation surveys for select projects depending on land use and conditions in the field.

Establishing Trip Generation Rates for an Unknown or Unique Use

For projects where the ultimate land-use is not certain (for example, a large subdivision of flexible commercial-industrial parcels), there are two options for establishing the trip generation rates.

- Option 1: City staff will recommend the use of the highest traffic intensity among all permitted uses to establish traffic impacts.
- Option 2: Estimates can be made using a lower traffic intensity use if the City and developer establish a maximum trip allowance. Once a proposed land use has been identified then: 1) the subdivision trip generation allowance must be monitored by the City as development occurs; and 2) the TIA report may need to be updated.

Trip Rate Reductions

Standard rates published by ITE or SANDAG are generally developed for suburban sites where access is primarily made via personal automobile. As such, Paso Robles recognizes that the rates may overstate the traffic impact for developments that contain a mix of uses (and "capture" some vehicle trips internally) or are located in downtown Paso Robles. Additionally, certain commercial land uses attract vehicle traffic that currently exists on the roadway, rather than generating new trips. This section discusses permitted reductions that may be taken under these circumstances.

The estimate of new trips generated by the proposed development project may include credit for trips associated with existing uses on the site. Uses are considered as existing if they are actively present on the project site at the time that data is gathered for the transportation impact analysis. Additionally, if a planned (but not constructed) use was already permitted for the site and an improvement(s) was identified and funded, the new TIA only needs to assess the effects of additional trips above and beyond the trips for the permitted use..

<u>Internalization/ Walking, Bicycling or Transit Trips</u>

Internal or captured trips are trips that do not enter or leave the driveways of a project within a mixed-use development. They are similar to active transportation trips (e.g., walking or bicycling) or transit trips in a setting like Paso Robles, where destinations may be reached on foot (a "park once" environment). These trips do not add vehicle traffic to the local roadway system. Trip rate reductions are allowed for internalization for internal trips at mixed-use sites or in downtown Paso Robles. Specifically, trip generation estimates may use trip adjustments due to land use variables such as **D**ensity, **D**iversity, **D**esign and **D**estination to enhance its sensitivity to the built environment. These four most commonly discussed built environment factors and their effects on vehicle trips are summarized below:

- Net Residential and Employment **D**ensity – A wide body of research suggests that, all else being equal, denser developments generate fewer vehicle-trips per dwelling unit than less dense developments.

- Jobs/Housing **D**iversity – Research suggests that having residences and jobs in close proximity will reduce the vehicle-trips generated by each land use by allowing some trips to be made on foot or by bicycle.

- Walkable/Bikeable **D**esign – Many pedestrian and bicycle improvement projects are based on the assumption (supported by some research findings) that improving the walking/biking environment will result in more active travel trips (e.g., walking, bicycling, etc.) and a resulting reduction in vehicle travel.

- **D**estination Accessibility – Research shows that, all else being equal, households situated near regional centers of activity generate fewer vehicle trips and VMT.

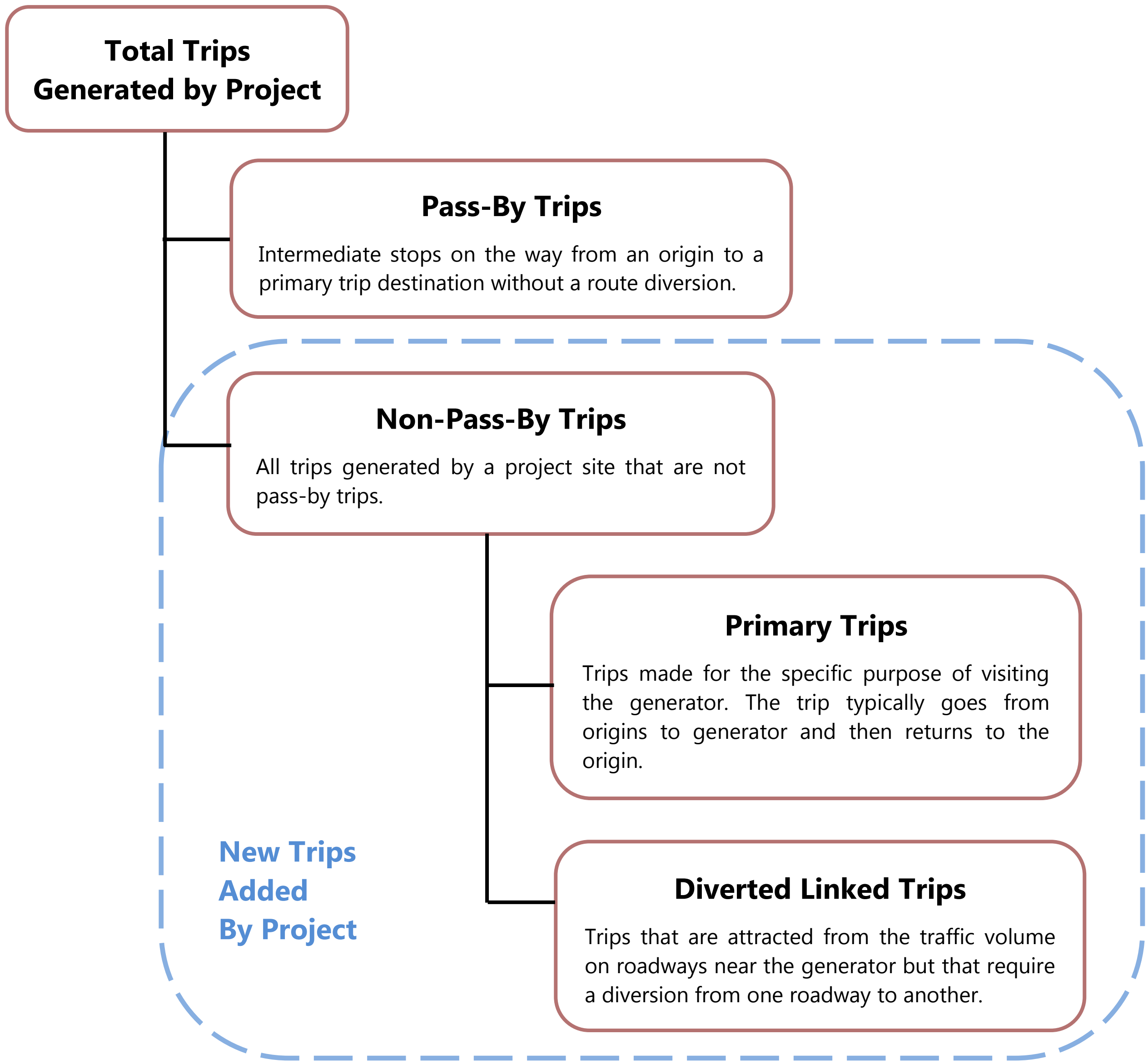
Other built environment factors such as demographics, distance to transit, and employment within 30 minutes by transit also affect vehicle trip making. Reductions shall be based on empirical and peer-reviewed data, and quantitatively supported in the TIA report. If trip rates are derived from a local survey of a similar land use or derived by a mixed-use trip generation estimator, additional trip reductions may be permitted based on location and other factors. Tools are available from ITE and other sources to estimate these reductions.

<u>Pass-by / Diverted Link</u>

It is a fact that restaurants, convenience stores, gas stations, banks, and similar commercial land uses often locate on high traffic volume roads to attract motorists already on the street. These attracted trips are not new traffic to the adjacent street system but simply access a new use as part of their current travel path. These trips are known as pass-by trips. For commercial land uses on arterial or collector streets, a reduction for pass-by trips supported by analysis may be used. Analysis resources could include the ITE *Trip Generation Handbook* Chapter 5 or a documented and relevant study. To ensure adequacy of project driveways, the access analysis at these locations should reflect total site-generated trips, and not include any pass-by or similar reductions.

Diverted Linked trips are similar to pass-by trips in that they are vehicle trips already on the roadway network. However, the key difference is that diverted linked (link meaning roadway) trips pull traffic from other roadways (not adjacent to the project site) onto the roadway(s) serving the development. Thus these trips *do* add traffic to adjacent streets serving the site and should not be included as a reduction.

As an example, a new gas station is proposed on a minor street one block away from a major arterial street. The trips that are attracted to the station site from existing traffic on the major arterial are diverted link trips. Those trips attracted to the site from existing traffic on the minor street in front of the new gas station are defined as pass-by trips. In both cases, these are not new trips to the overall network but come from existing volumes on adjacent or nearby roadways.


Total Trips
Generated by Project
Pass-By Trips
Intermediate stops on the way from an origin to a primary trip destination without a route diversion.
Non-Pass-By Trips
All trips generated by a project site that are not pass-by trips.
Primary Trips
Trips made for the specific purpose of visiting the generator. The trip typically goes from origins to generator and then returns to the origin.
Diverted Linked Trips
Trips that are attracted from the traffic volume on roadways near the generator but that require a diversion from one roadway to another.
New Trips
Added
By Project

Best Management Practices Framework

In addition to compact land use development (characterized by density, diversity, design destination accessibility, transit accessibility, and affordable housing), Best Management Practices (BMPs) for transportation can further reduce the vehicle trips from a project site. They include some elements that are traditionally included in Transportation Demand Management (TDM) programs, but also include built environment factors listed in the preceding section. Key BMP elements include:

- **Neighborhood/Site Enhancement** – Bicycle and pedestrian network, car sharing programs, traffic calming, and site design to support other travel modes;
- **Parking Policy / Pricing** – Parking supply limits, unbundled parking cost from property cost, and public parking pricing;
- **Transit System Improvements** – Transit stop physical and access improvements;
- **Commute Trip Reduction** – Transit fare subsidy, employee parking cash-out, alternative work schedules, price workplace parking, shuttles, and employer sponsored vanpools.

BMP elements planned for the project should be included in the analysis, with the corresponding recommended reduction in vehicle trip generation for each element clearly stated. Any trip rate reductions claimed for BMP elements are subject to approval by City staff.

III. SCOPE OF THE STUDY

The contents and extent of a transportation impact analysis (TIA) depend on the location and size of the proposed development, the prevailing transportation conditions in the surrounding area, and the technical responses to address questions being asked by decision-makers and the public.

How do I determine the study area?

STUDY AREA

The study area can be thought of as the area of influence of a project. It needs to be defined through a process that results in substantial evidence (i.e., facts, analysis, etc.) that supports study area delineation. The study area is determined by evaluating the project location and how it may affect all transportation modes and facilities. It is not simply a map showing where the project is located. The minimum study area shall include the transportation network area where:

- The project adds more than 10 peak hour trips per lane to an intersection turn movement; and/or
- The project adds 1 percent to the freeway or multi-lane highway capacity.

Applicants should consult with the City early regarding any additional study locations based on local or site-specific issues, especially those related to agricultural vehicles, pedestrians, bicycles, rail crossings, and transit.

ANALYSIS SCENARIOS

The required range of analysis scenarios is dependent on several factors:

How many traffic analysis scenarios are required?

- Project size and complexity
- Planned construction schedule (i.e., phasing)
- Location and potential impact relative to other approved development
- Consistency with the General Plan

The range of scenarios includes Present Existing Conditions, Near-Term Conditions, and Long-Term Conditions. Most isolated or small projects consistent with the General Plan will be required only to complete the Present Conditions analysis, which looks at the effect of the proposed project on the existing system within the next year or two. Larger projects and projects near other potential development projects may be required to analyze both Present and Near-Term Conditions, the latter of which typically looks at a longer timeframe of typically three to five years. The analysis of all three-analysis conditions (e.g., Present Conditions, Near-Term Conditions, and Long-Term Conditions), would typically occur for General Plan Amendments and Specific Plans, where Long-Term Conditions examines a time horizon of 10 to 20 years.

To document any existing or future deficiencies, and to identify those that will result from the project, the following analysis scenarios are required. Each scenario will include a qualitative description of transportation facilities for all modes (and any planned future enhancements), traffic volumes, and a quantitative analysis of intersection and roadway level of service (LOS). Key study elements are identified in Chapter V. Details regarding each transportation analysis scenario are presented below.

Present Conditions

Existing

These conditions are based on recent field observations and recent traffic count data. For compliance with CEQA Section 15125(a), the transportation impact analysis must include a description of the physical environmental conditions near the project, as they exist at the time of the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective.

Existing with Project

Traffic volume forecasts for roadway analysis should reflect Existing Conditions with traffic generated by the proposed project. For re-use or conversion projects, this will involve accounting for any existing use of the site that remains or will be removed. It should also qualitatively describe how the project will affect transportation for other modes including any compliance or relation to other City documents such as the *Bike Master Plan, City of Paso Robles*.[6]

Near-Term Conditions

Near-Term Baseline

Traffic volume forecasts for roadway segment and intersection analysis should reflect Existing Conditions with growth due to approved development that is expected to be operational before or concurrently with the proposed project. This scenario may not be needed if the study area has limited or no approved developments.

Near-Term Baseline with Project

This scenario represents the Near-Term Baseline Conditions with vehicle trips added by the proposed project. This scenario provides decision-makers and the public with a view of conditions with all recently approved development and physical improvements including the proposed project.

Long-Term Conditions (General Plan Amendments and Specific Plans)

Cumulative without Project

Transportation conditions for all travel modes in the study area reflecting all approved projects with pending projects or expected development of other areas of Paso Robles designated for growth under

[6] *Bike Master Plan, City of El Paso de Robles*, Paso Robles, December 2009.

the General Plan or Specific Plan. In most cases, the project site will likely be vacant under this scenario. In some cases though, this scenario may need to account for any existing uses on the site that could continue and potential increases in development allowed by ministerial approvals only.

Cumulative with Project

This scenario represents the cumulative future transportation conditions with changes to the transportation system caused by the proposed project and provides the long-range view of future traffic operations.

ANALYSIS TIME PERIODS

The determination of analysis time periods should be made separately for each proposed project based upon the peaking characteristics of project-generated traffic and peaking characteristics of the adjacent street system and land uses. Retail commercial projects should evaluate each scenario during weekday evening and Saturday mid-day peak hours, provided they are not open during the morning peak period. Residential, office, and industrial projects should evaluate each scenario for weekday morning and evening peak hours. Other time periods for some uses may be required by the City, such as weekday mid-day.

Based on the land use of the proposed project and upon consultation with City staff, the study shall analyze traffic operations during the peak one-hour of the following time periods.

What time periods need to be analyzed?

- Weekday morning peak (7:00 – 9:00 AM)
- Weekday evening peak (4:00 – 6:00 PM)

For some projects, the City may substitute or require additional peak hour analysis for the following time periods.

- Weekday afternoon peak (2:00 – 4:00 PM)
- Friday evening peak (4:00 – 7:00 PM)
- Weekend mid-day peak (11:00 AM – 1:00 PM)
- Sunday or holiday evening peak (4:00 – 7:00 PM)

The determination of study time periods should be made separately for each proposed project based upon the peaking characteristics of project-generated traffic and peaking characteristics of the adjacent street system and land uses.

IV. RELEVANT LOCAL POLICIES

An important aspect of a TIA is to provide sufficient information for the City to determine that a project is consistent with the General Plan and other applicable City plans. As such, individual projects must be reviewed against relevant policies contained in the General Plan or other plans and policies. Chapter I lists most of the relevant policies associated with each element of a TIA in an abbreviated fashion. Applicants should review the full policy statements in the *General Plan 2011 Circulation Element*.

VEHICLE LEVEL OF SERVICE

Historically, vehicle level of service (LOS) thresholds have been the prevailing criteria applied to transportation projects. The *General Plan 2011 Circulation Element*[7] changes how the performance of the network is measured by de-emphasizing an auto-centric measurement (i.e., peak hour LOS) in favor of measures that represent a more efficient use of resources, support the mobility of people, quality of life and small-town feel desired by residents. With this in mind, future traffic projections in the *General Plan 2011 Circulation Element* were provided in terms of capacity utilization, or the extent to which the roadway's capacity is being used on a daily basis. The *General Plan 2011 Circulation Element* identified four roadway segments that are projected to exceed their capacity by 2025 and two other segments that are expected to be at or near capacity. These links and their projected capacity utilization are provided below:

- **US 101** from Wellsona Road to Main Street (Templeton, CA) (up to 117%)
- **SR 46 East** from US Highway 101 to Airport Road (up to 109%)
- **13th Street** from Riverside Avenue to Union Road (up to 86%)
- **Niblick Road** from Spring Street to South River Road (up to 102%)
- **Spring Street** from Niblick Road to 24th Street (up to 105%)
- **Creston Road** (up to 91%)

These utilization percentages reflect an effective LOS of E or F with projected congestion along these segments and at key corridor intersections, especially during peak hours. Details on how intersection and roadway segment level of service (LOS) will be analyzed and operations addressed are discussed in Chapter V. Per the General Plan, physical improvements focus on operational efficiencies (i.e., signal coordination, modified timings) and enhancements to improve bicycle and pedestrian travel as needed, but generally do not include roadway expansion simply to address overall LOS.

If the analysis extends into an adjacent jurisdiction, the applicant is responsible for analyzing roadway project impacts in these jurisdictions. The respective LOS threshold shall be used for the impact significance criteria for analysis locations in that jurisdiction. These include intersection or segment locations in San Luis Obispo County (including urbanized areas such as Templeton), or any other jurisdiction including Caltrans-maintained facilities. The applicant shall refer to current policies in the respective jurisdiction.

[7] *City of El Paso de Robles General Plan Circulation Element*, City of El Paso de Robles, 2011.

V. ANALYSIS METHODS

This chapter addresses the following: key study elements, data collection, site access/on-site transportation circulation review, and analysis procedures for conducting transportation impact studies in Paso Robles. The City is committed to a balanced level of analysis for all modes of travel. The methods presented in this chapter include robust data collection and analysis techniques for pedestrian, bicycle and transit networks, in addition to vehicle circulation.

KEY STUDY ELEMENTS

The extent and complexity of a transportation impact analysis can vary greatly. **Table 2** summarizes the basic requirements for a transportation and circulation report for every project requiring a complete TIA. Specific significance criteria for each of the listed elements are described in further detail in Chapter VI. To avoid substantial off-site improvements or changes to the project site plan/description after the TIA report is completed, a preliminary site-plan shall be prepared as a "fatal flaw" evaluation.

TABLE 2: KEY STUDY ELEMENTS AND EVALUATION CRITERIA

Study Element	Evaluation Criteria
Parking	Compare the project parking plan with City and local Specific Plan standards and discuss how the proposed supply will affect demand for walking, bicycling and transit modes. If a mix of land uses is proposed on-site, or complements adjacent land uses, justify how the development will make use of shared on-site parking.
On-site Circulation	Review and evaluate site access locations, turning radii, truck loading areas, emergency access, and other site characteristics with respect to operations and safety for all modes of transportation.
Pedestrian Facilities	Identify any existing or planned pedestrian facilities that may be affected by the project. Document how the project will affect local pedestrian circulation (e.g., disclose how widening a road or adding a driveway will affect pedestrian safety and walking time).
Bicycle Facilities	Identify any existing or planned facilities (per the *Bike Master Plan, City of El Paso de Robles*) that may be affected by the project.
Transit	Identify any existing or planned transit facilities that may be affected by the project. If appropriate, document how the project improves access to or utilization of transit. For system planning, use crush load as capacity, not seated capacity.

TABLE 2: KEY STUDY ELEMENTS AND EVALUATION CRITERIA (CONTINUED)

Study Element	Evaluation Criteria
Trucks (or Other Large Vehicles)	For relevant industrial/agricultural projects, identify the number of truck trips that will be generated, and design facilities necessary to accommodate these trucks.
Neighborhood Electric Vehicle(NEV) System	For projects with a proposed NEV system, review potential for NEV circulation within the study area by identifying NEV opportunities and constraints. Alternatively, a separate facility (e.g., shared use path or lane) may be recommended.
Off-Site Traffic Operations	All roadway facilities of significance within the study area will be analyzed using the latest version of the *Highway Capacity Manual* (HCM).
Intersection Traffic Control	Evaluate unsignalized intersections located within the study area to determine appropriate traffic control. Analysis should include documentation of the appropriateness of a roundabout as an alternative to a traffic signal (Goal CE-1, Policy CE-1A Action Item 8).
General Plan Consistency	Evaluate the project against goals, policies, and actions set forth in the General Plan.
Other Issues	Consider other areas on a case-by-case basis (e.g., construction deficiencies)
Other Jurisdictional Requirements	In situations where several agencies must approve a development or are responsible for affected roadways, the applicant must contact lead and responsible agencies to determine issues to be addressed, scope of study, etc. In general, the applicant will be responsible for analyzing project impacts against appropriate jurisdictional thresholds; however, the analysis method will be determined by the City in compliance with CEQA and the impacts will be mitigated consistent with City standards.

DATA COLLECTION

Accurate data is essential to achieve a high level of confidence in transportation analysis results. Existing transportation data shall be collected using the guidelines set below. Data should be presented on maps or figures where appropriate. To address the specific needs of each project, extent of data collected shall be at the discretion of the Community Development Director.

- **Pedestrian/Bicycle Facilities** – The report will document the existing pedestrian and bicycle facilities serving the project site. Elements should include presence and width of sidewalks, curb ramps, crosswalks or other pedestrian facilities within ½-mile walking distance of the project site, and bicycle facilities (e.g., routes, lanes or shared use paths) within 2-miles bicycling distance of the project site. Document barriers, deficiencies and high-pedestrian demand land uses including schools, parking, senior housing facilities, and transit stops or centers. Consider using evaluation tools such as ***www.walkscore.org*** or similar tools to quantify walkability. The report should note any deficiencies or any enhancements planned or recommended in the *Bike Master Plan, City of El Paso de Robles*.

- **Transit Analysis** – The report should document transit lines that serve the project site (e.g., within a walking distance of ¼-mile of non-residential and a ½-mile of residential project), including stop locations, frequency of service, and any capacity issues. It should also describe transit stop amenities (e.g., benches, shelters, etc.).

- **Peak-Period Turning Movement Counts** – Turning movement counts should be collected for each study time period at all study intersections. The following parameters should be followed (fall and spring days while school is in-session is preferred):

  - Data collection should cover at least 2 hours to ensure the peak hour is observed. If possible 24-hour machine counts should be used to identify the peak period for subsequent intersection counts.

  - Traffic volumes should not be influenced by a holiday, weather, construction, or other temporary change.

  - The percent of traffic that consists of heavy trucks should be noted/estimated during data collection.

  - Some projects may require vehicle classification or occupancy counts. Consult with City staff on a case-by-case basis.

  - Bicycle and pedestrian volumes should be included in all counts.

  - Traffic counts that are older than two years at study initiation may not be used without consultation and approval by City staff. These counts may need to be adjusted to reflect current year traffic volumes.

- **Daily Traffic Counts** – Collect data for all study roadway segments using the parameters described above for peak-period turning movement counts with the exception of bicycle and pedestrian volumes. Daily counts are used to size facilities (e.g., 2-lane vs. 4-lane) and to identify temporal changes in traffic.

- **Roadway Geometry** – Document existing roadway and intersection geometries and lane configurations. Information aerial photography and street views should be verified based on a site visit(s).

- **Intersection Controls, and Signal Timings** – For use in intersection analysis, intersection control types and signal timings and phasing shall be recorded during site visits. Signal timing may also be available from the City of Paso Robles or Caltrans.

- **Five-Year Collision Data** – Obtain Statewide Integrated Traffic Records System (SWITRS) through the local California Highway Patrol or through the following web site: www.chp.ca.gov/switrs.

- **Mode Split** – Summarize daily and peak hour mode split for the study area land uses. Data could include Census journey-to-work, empirical surveys, or any other available surveys. When the city develops a citywide mode split target, the TIA report will describe how the project will strive to achieve the citywide mode split target and compare to available travel surveys.

SITE ACCESS/ON-SITE CIRCULATION REVIEW

A detailed site review is required for every project. Consideration should be given to the following qualitative and quantitative reviews and summarized in the TIA.

- Existence of any current traffic problems in the local area such as a high-collision location, non-standard intersection or roadway, or an intersection in need of a traffic signal.
- Applicability of context-sensitive design practices compatible with adjacent neighborhoods or other areas that may be impacted by the project traffic.
- Close proximity of proposed site driveway(s) to other driveways or intersections.
- Adequacy of the project site design to convey all vehicle types.
- Adequacy of on-site vehicle, bicycle, and pedestrian circulation and provision of safe pedestrian paths from residential areas to school sites, public streets to commercial and residential areas, and the project site to nearby transit facilities.

MULTIMODAL ANALYSIS

The report should evaluate the project's potential adverse or beneficial effects on transportation facilities and services related to pedestrians, bicycles, transit, and rail crossings.

For some projects, more detailed multi-modal analysis may be required. Such analysis shall be decided upon in consultation with City staff and consider new tools, methods, and performance measures such as those listed below.

- **Multimodal LOS** – The 2010 *Highway Capacity Manual* contains methods for multimodal LOS and is available for use. Alternatively, simulation models can be used to measure performance (i.e., person-delay) for all modes within a transportation network.
- **Pedestrian Environmental Quality Index (PEQI)** – This index was developed by the San Francisco Department of Public Health. It measures thirty indicators to evaluate the pedestrian environment quality at both the intersection and street segment level. Intersection-level quality looks only at safety features that protect pedestrians from vehicle traffic. These include crosswalk presence and type of traffic calming features. Street segment analysis looks at land use, traffic, and design features as well as perceived safety from crime. These include sidewalk presence and quality, lighting, trees, and other elements.[8]

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[8] *The Pedestrian Environmental Quality Index (PEQI): An Assessment of the Physical Condition of Streets and Intersections DRAFT Methods Report*, San Francisco Department of Public Health, 2008.

- **Bicycle Environmental Quality Index (BEQI)** – This index was also developed by the San Francisco Department of Public Health. It measures twenty-one indicators to evaluate the bicycle service quality at both the intersection and street segment level. Intersection-level quality looks at safety features that protect cyclists, including bike lanes through intersections, pavement markings, and no turn on red signs. Street segment looks at land use, traffic and design features such as pavement type and condition, driveway cuts, retail land uses, and other factors.[9]

- **Activity Connectedness** – Travel time for each mode (e.g., walking, bicycles, transit, and vehicles) between the project and surrounding land uses can be used to gauge the degree of accessibility for a project. The City desires to minimize travel time to necessary destinations while minimizing unnecessary vehicle travel.

  Tools such as geographic information systems or online tools (e.g., Index and Walkscore) can be used to gauge this measure specifically for walking. The main idea is to evaluate activity centers and destinations around projects to ensure that walk times to necessary destinations are minimized and the walking experience is comfortable.

- **Speed Management** – Desired travel speeds for each mode should be considered in project evaluation where new transportation facilities are being constructed. For urban areas, the City desires roadways to be designed for 35 miles per hour or less to allow NEV use and to reduce the severity of collisions. Desired speeds for commuter bikeways and pedestrianways will depend on the surrounding context, but the intent is to minimize barriers or obstructions to bicycle and pedestrian movements.

TRAVEL DEMAND FORECAST AND VMT CALCULATION METHODS

Background

The Paso Robles travel demand forecast (TDF) model was created as a sub-area model within the San Luis Obispo Council of Governments (SLOCOG) regional travel demand model. The SLOCOG model was originally created to improve regional forecasting and planning but also aided jurisdictions within San Luis Obispo County in creating their own local travel demand models.

The traffic model is an important transportation planning tool that is used to forecast travel in the City based on expected land use and/or roadway network changes. The *City of Paso Robles Model Development Report*[10] (Fehr & Peers, July 2009) describes in detail the model development process, including the sources of data used to develop key model inputs and check them for reasonableness, and presents model validation results, which measure the model's accuracy.

The TDF model has been enhanced to account for the 4Ds (design, diversity, destination accessibility, and density of land uses within relatively small geographic areas). The 4D process is an approach for assessing travel impacts relative to changes in measures of the built environment. The method utilizes a compilation of elasticities of vehicle trip rates and vehicle miles of travel (VMT) relative to the defined "D" measures. These impacts are typically not captured in the standard four-step travel demand model. No additional "D" trip reductions are allowed without consent from City staff.

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9 *The Bicycle Environmental Quality Index (BEQI): Draft Report*, San Francisco Department of Public Health, 2009.
10 *The City of Paso Robles Model Development Report*, Fehr & Peers, July 2009.

Application of Paso Robles Travel Demand Forecasting Model

To conduct transportation and vehicle miles traveled (VMT)/Greenhouse Gas (GHG) analysis that meets environmental regulatory conditions and provides a high level of confidence in the analysis results, analysts should follow state-of-the-practice or best practice methods for travel demand forecasting. When using a travel demand forecasting model, the following fundamental criteria should be met to ensure compliance with state-of-the-practice expectations.

- The scale of the model should match that of the study area.
- The model should be calibrated and validated within the study area.
- The model validation should include static and dynamic tests.
- The model's land use or socioeconomic forecasts should be tested for reasonableness.
- Raw model output volumes from a travel demand forecasting model must be adjusted to account for differences between base year model estimates and base year traffic counts based on state-of-practice techniques and must be tested for reasonableness.

The need for new model runs shall be determined in consultation with City staff and will be dependent upon the size and influence of the proposed project.

Vehicle Miles Traveled Method

Although the calculation of VMT is simply the number of cars multiplied by the distance traveled by each car, VMT performance measures can be reported differently. For the purposes of the VMT analysis for the City of Paso Robles, the performance measure of VMT generated per service population (residents + employment) should be used and reported consistent with the method used in the City of El Paso de Robles *General Plan 2011 Circulation Element Final EIR*.[11] This approach focuses on the VMT generated by new population and employment growth and may be reported using the City TDF model or an off-model "accounting method" depending on the type of GHG emissions analysis. VMT estimates should be provided by speed-bin if a GHG analysis is being completed. This is also described as land use-based VMT, which is another key measure of effectiveness (MOE) used to evaluate the benefits and impacts of proposed developments.

TRAFFIC OPERATIONS ANALYSIS

Traffic deficiencies shall be analyzed using standard or state-of-the-practice professional procedures. The main issues related to traffic operations analysis are the method, input data, and assumptions. These three items influence the level of confidence in the analysis and the associated level of defensibility of the environmental document. For traffic operations, this requires following the procedures and techniques published in the most recent *Highway Capacity Manual*.

Evaluating Side Street Stop-Controlled Intersections

In addition to reporting the worst individual movement delay, the delay for the overall intersection shall be calculated and reported.

[11] *City of El Paso de Robles General Plan 2011 Circulation Element Final EIR*, City of Paso de Robles, 2011.

Traffic Signal Parameter

Traffic signal parameters are as important as accurate turning moving counts for determining intersection LOS. As summarized in **Table 3**, the following intersection data should be collected and/or calculated along with the traffic counts. Traffic signal timing information should be collected from City or Caltrans staff, and verified by field observations.

Software/HCM Recommendation

Intersection operations shall be analyzed using *HCM* methodology. **Table 4** provides a matrix of software options for analysis. Paso Robles does not require use of a particular software suite for analysis. However, the preferred method of analysis for signalized and unsignalized intersections is Synchro or a similar program that takes into account specific timing and phasing parameters, as well as the number of pedestrian calls and bicycles present. Special conditions related to congested conditions, state highway facilities, and roundabouts are discussed in more detail below.

TABLE 3: TRAFFIC SIGNAL PARAMETERS

Parameter	Recommendation
Peak Hour Factor (PHF)	PHF for Existing Conditions should be collected and calculated from the traffic count data. It should be calculated individually for each isolated intersection and grouped of closely spaced intersections. For cumulative scenarios or Existing Conditions where the PHF is not available, refer to the *HCM* and maintain consistency throughout the analysis periods. If a simulation model is used for analysis, the PHF should be applied over more than a 15-minute period.
Saturation Flow Rate	A field measurement of the saturation flow rate is recommended in accordance with procedure in the *HCM*, Chapter 18, Signalized Intersections: Supplemental. For Cumulative Conditions, use the value recommended in the most recent *HCM* unless physical conditions and traffic controls warrant a change. The *HCM* recommends 1,900 vehicles per hour per lane.
Yellow Phase	Ranges from 3 to 6 seconds, with longer values in this range used with phases serving high-speed movements. If traffic signal is present under Existing Conditions, use existing yellow phase (*HCM*, Chapter 18).
All Red Phase	1 second per phase (if traffic signal is present under Existing Conditions, use existing length of all red phase). This phase may be greater on high-speed roadways.
Pedestrian and Bicycle Conflicts	Pedestrian and bicycle signal calls and crossing conflicts at intersections can increase delay for vehicles. Outside of dedicated phases, they generally conflict with right-turning motorists and motorists making permitted left turns. The volume of each should be collected during traffic counts and used in the analysis. Otherwise refer to the most current version of the *Highway Capacity Manual*.

TABLE 3: TRAFFIC SIGNAL PARAMETERS (CONTINUED)

Parameter	Recommendation
Cycle Lengths	Replicate existing cycle length and phasing (e.g., leading left turns) when possible. For new signalized locations, use the cycle lengths the following three categories unless other cycle lengths can be justified through the traffic operations analysis. In and around downtown – limit signal cycle lengths to 60 seconds or less. In and around suburban areas – limit signal cycle lengths to 90 seconds or less. Near freeway interchanges/regional commercial – limit signal cycle lengths to 120 seconds or less. Ensure that minimum pedestrian times are satisfied.
Heavy Truck Percentages	Based on the existing heavy-truck percentage and adjusted to account for future planned development. In general, heavy-truck percentages should be greater on truck routes and main thoroughfares than on local streets. Minimum recommended value is 2%.
Lane Utilization Factor	If applicable, adjust lane utilization factors based on field observations.

Congested Conditions

Analysts should note that the *HCM* recommends the use of simulation models to analyze congested conditions or closely spaced intersections. Since simulation tools (e.g., Paramics, VISSIM, SimTraffic, etc.) can simultaneously evaluate vehicle interactions across a complete network (including the interaction of multiple modes), they can provide a more complete understanding of traffic operating conditions during peak congested periods and what may happen when a specific bottleneck is modified or eliminated. Specifically, care should be taken in analyzing intersection LOS at closely spaced intersections. In such cases, standard intersection analysis does not adequately show the compound effects of intersection delay. If study intersections are less than 300 feet from upstream or downstream intersections or if the estimated 95% queue lengths exceed the distance between intersections, microsimulation using the average of 5 or more runs should be used to calculate delay.

State Highway Analysis

In the City of Paso Robles, the analysis of state highways could include freeways and conventional highways. Freeway analysis will typically include basic freeway segments, ramp junctions, weaving sections, and ramp terminal intersections. *HCM* methods shall be used to analyze most of these freeway components; however, Caltrans has alternative analysis methods for weaving sections as defined in the Caltrans *Highway Design Manual* (*HDM* Section 504.7)[12]. The Caltrans District 5 traffic operations branch should be consulted before beginning any weaving analysis. Analyzing ramp terminal intersections should

[12] *Highway Design Manual*, Caltrans, 2010.

consider that these intersections are closely spaced in most cases and operate as an integrated set of signals versus isolated locations.

TABLE 4: SOFTWARE ANALYSIS OPTIONS

Software/ Method	Traffic Studies[1]		Roundabouts		Arterial/ Interchange Operations	Microsimulation Analysis[4]		
	Operations[2]	Signal Coordination[3]	Planning	Design		Unique Geometrics	Heavily Congested Conditions	Multi-Modal
FHWA Roundabout Guidelines			X					
Synchro/ SimTraffic	X	X	X		X	X		
VISTRO/ TRAFFIX	X		X					
HCS	X				X			
SIDRA Intersection			X	X				
Rodel			X					
Micro-Simulation[5]		X		X	X	X	X	X

Notes: The most current version of analysis software (with updated software patches) should be used.

1. Refer to thresholds for identifying if a traffic study is required.
2. Appropriate for isolated intersection operations or for signal systems that are not coordinated.
3. Mandatory for coordinated signal systems to maximize vehicle progression.
4. Should be applied to analyzing operations of congested conditions or non-standard conditions where traditional analytical approaches may not be appropriate.
5. Specific software program selection should be conducted in consultation with the City and consider the types of technical questions being asked in the study and the modes to be included.

Roundabout Analysis

Typically, roundabout operations are analyzed in conjunction with a conceptual roundabout design. Different roundabout analysis methods (FHWA, Australian Gap Acceptance, UK Empirical, *HCM* 2010, and microsimulation) provide different delay results and corresponding capacities. The deterministic roundabout analysis methods described in the *HCM* can be used for roundabouts operating under low volume and isolated conditions (without influence from nearby intersections). *HCM* methods allow the use of calibration factors to reflect regional differences in roundabout capacity. Calibration factors specific to California are available in the report *Roundabout Geometric Design Guidance*, 2007, California Department of Transportation Division of Research and Innovation. Roundabout queue lengths should also be reviewed to ensure that they do not spill beyond available storage or interfere with overall operations of the roundabout and/or transportation system.

As described in the *HCM*, the use of alternative analysis methods is needed for complex multi-lane roundabout designs, roundabouts operating near or at capacity, high pedestrian and/or bicycle volume, at roundabout locations where upstream or downstream operation may interact with adjacent roundabouts or signals. Microsimulation of the roundabout and surrounding intersections may also be useful. Care must be taken in coding and calibrating the microsimulation models to accurately reflect the proposed roundabout design and operational characteristics.

When comparing roundabout versus signal control at a given location, long-term maintenance costs should be calculated and considered in the evaluation.

VI. DEFICIENCY ASSESSMENT

The main goal of TIA is to identify, and determine the magnitude of, the potential transportation deficiencies resulting from a project. This section explains this evaluation process and provides the mobility deficiency criteria.

Does my project result in a mobility deficiency?

MOBILITY DEFICENCY CRITERIA

The overall goal of the Circulation Element is to "establish a safe, balanced, and efficient circulation system, focusing on the mobility of people, and preserving the City's small town character and quality of life." Thus, the City of Paso Robles is evaluating each transportation mode and is not using vehicle level of service and overall intersection delay as the primary driver for mobility planning or to identify significant environmental impacts. Each TIA report will evaluate intersection operations, but traffic deficiencies will focus on specific traffic issues such as queuing (typically not an environmental impact criterion) and safety. A greater emphasis is now placed on pedestrian, bicycle, and transit facilities and services, in part to reduce traffic congestion and air quality impacts associated with automobile use. **Table 5** outlines deficiency criteria for each mode. A sub-set of the deficiency criteria presented in **Table 5** will be used to determine significant impacts as a part of the CEQA environmental analysis process.

Transportation Impact Analyses and Environmental Impact Analysis

A transportation impact analysis evaluates all modes of transportation and includes analysis of study elements such as parking and detailed traffic operations that are not considered environmental impacts. Thus, a transportation analysis evaluates deficiencies and improvements. A sub-set of these deficiencies are used to determine significant impacts and mitigation as a part of the environmental analysis process.

TABLE 5: MOBILITY DEFICIENCY CRITERIA

Study Element	Deficiency Determination
Parking	Project increases off-site parking demand or supply near the project site above a level required by the City Zoning Code and/or desirable by the City.
On-site Circulation	Project designs for on-street circulation, access, and parking fail to meet City or industry standard design guidelines. Failure to provide adequate accessibility for service and delivery trucks on-site, including access to loading areas. Project will result in a hazard or potentially unsafe conditions without improvements.
Pedestrian Facilities	Project fails to provide safe and accessible pedestrian connections between project buildings and adjacent streets, trails, and transit facilities. Project adds trips to an existing facility that does not meet current pedestrian design standards.
Bicycle Facilities	Project disrupts existing or planned bicycle facilities or is otherwise incongruent with the City *Bike Master Plan*. Project adds bicycle trips to an existing facility that does not meet current bicycle design standards.
Transit	Project disrupts existing or planned transit facilities and services or conflicts with adopted City non-auto plans, guidelines, policies, or standards. Project adds transit trips to a line already operating at peak hour crush load capacity.
Heavy Vehicles (Trucks and Buses)	A project fails to provide adequate accommodation of forecast heavy traffic or temporary construction-related truck traffic.
Off-site Traffic Operations	Vehicle queues that exceed the existing or planned length of a turn pocket. The proposed project introduces a design feature that substantially increases safety hazards.
Signalized Intersection Traffic Control	Per General Plan, vehicle LOS is not used for deficiency identification.
Unsignalized Intersection Traffic Control	Addition of project traffic causes an all-way stop-controlled or side street stop-controlled intersection to: 1) operate at LOS E or F overall or the worst-case movement, and 2) meet the Caltrans signal warrant criteria.
General Plan Consistency	Evaluate the project against mobility, safety, and other related goals, policies, and actions set forth in the General Plan.
Other Subject Areas	Consider other areas on a case-by-case basis (e.g., construction impacts).
Requirements for Other Jurisdictions	The project exceeds established deficiency thresholds for transportation facilities and services under the jurisdiction of other agencies.

Cumulative Deficiencies

Cumulative deficiency analysis must comply with the California Environmental Quality Act (CEQA) law and guidelines. Cumulative Conditions include the planned and funded transportation system improvements included in the regional transportation plan and land use projects in the City and adjacent jurisdictions. Land use development and infrastructure projects that are consistent with the General Plan, are expected to rely on the General Plan 2011 Circulation Element cumulative traffic analysis and EIR conclusions. Specific Plans will require updated cumulative traffic analysis consistent with the following definitions.

- The cumulative scenario is required per CEQA Guidelines Section 15130.
- The general definition of cumulative as a scenario is that it represents past, present, and reasonably foreseeable actions regarding land use development and the transportation network (see CEQA Guidelines Section 15355).

Using the mobility deficiency criteria, cumulative deficiencies are identified in a two-step process: 1) compare the cumulative condition to Existing Conditions to determine if a cumulative deficiency exists, and 2) determine if the project's proportion (in-terms of pedestrians, bicycle, transit, or vehicles) is greater than 1 percent to determine if the project's contribution is cumulatively considerable. The *General Plan 2011 Circulation Element* roadway capacity utilization was based on a build out of the City's land use designations through the year 2025, and will generally cover the cumulative traffic effects of development projects consistent with that plan. However, over time, it is likely that General Plan amendments or regional growth will influence background traffic volumes. If this occurs, individual projects may be required to conduct a project-specific cumulative analysis based on the determination of City staff.

VII. IMPROVEMENTS

The *General Plan 2011 Circulation Element* notes in its development policies that developers shall be responsible for the provision of off-site improvements where necessary to address transportation deficiencies that may be created by a development project. It also includes the responsibility for payment of transportation fees as adopted by the City Council or as required for mitigation identified through an environmental review process.

All project deficiencies should be addressed consistent with the policies of the *Paso Robles General Plan 2011 Circulation Element*. Under these circumstances, the applicant should meet with City staff to identify transportation improvements that balance the desired driver convenience and minimized congestion against other objectives to improve facilities and services for other transportation modes. **Table 6** shows the appropriate actions for each analysis scenario.

Each improvement will require detailed review, often including traffic operations, to assess resulting deficiency. **Table 6** provides a list of common improvements that may be applicable to the proposed project. Improvements should be identified under Present Conditions, Near-Term Conditions and Long-Term Conditions. For project-level analysis, the City of Paso Robles typically plans for and implements improvements identified under Near-Term Conditions (i.e., Present Conditions deficiency and improvements are provided for informational and CEQA disclosure purposes). The Near-Term Conditions more accurately reflects conditions at the time of full occupancy of a project with other approved development in place. For General Plan Amendments and Specific Plans funded improvements under the Long-Term Conditions are typically implemented. Each active and transit mode improvement should include a description of the benefit to reducing traffic generated by a proposed development and how the improvement contributes to the completion of the multi-modal transportation system.

TABLE 6: EXAMPLE IMPROVEMENTS

Study Element	Improvement
Best Management Practices (BMPs)	• Alter density or diversity of project uses • Institute flexible employee working hours where enforceable • Allow parking "cash out" or require employee paid parking • Institute preferential parking for carpools • Encourage employees to use carpools and public transportation • Provide employee walk/bike incentives
Pedestrian and Bicycle Facilities	• Provide for access to, from, and through the development for pedestrians and bicyclists • Construct Class I bicycle paths, Class II bicycle lanes, and other facilities • Provide secure bicycle parking and shower amenities • Reduce travel lanes on a street to install a two-way left-turn lane and Class II bicycle lanes
Transit Facilities	• Provide bus turn-outs, bus shelters, additional bus stops, and park-and-ride lots • Fund increases in transit level of service
Parking Facilities	• Design parking facilities to allow free-flow access to and from the street • Provide off-street parking per City standards or recommendations • Implement shared parking among complementary land uses
Traffic Control Modifications	• Provide for yield or stop control • Evaluate unsignalized intersections with substandard LOS for conversion to roundabout intersection control. • Provide coordination/synchronization of traffic signals along a corridor • Provide turn-lane channelization through raised islands • Restrict selected turning movements
Roadway Capacity Expansion	• Optimize location of access driveway(s) • Provide improvements to traffic signal phasing, or lengthen existing turning pocket • Provide additional through traffic lane(s), right-turn lane(s), and left-turn lane(s) if they do not adversely impact other modes • Reduce travel lanes on a street to install a two-way left-turn lane

APPENDIX A: TIA REPORT FORMAT OUTLINE

1. Introductory Items

- Front Cover/Title Page
- Table of Contents, List of Figures, and List of Tables
- Executive Summary

2. Introduction/Background

- Project description
- Project sponsor/contact info
- Type and size of development
- Site plan (include proposed driveways, roadways, traffic control, parking facilities, emergency vehicle access, and internal circulation for vehicles, bicyclists, and pedestrians)
- Location map (include major streets, study intersections, and neighboring zoning and land uses)

3. Existing Conditions

- Existing roadway system within project site and surrounding area
- Location and routes of nearest public transit system serving the project
- Location and routes of nearest pedestrian and bicycle facilities serving the project
- Figure of study intersections with peak hour turning movement counts, lane geometries, and traffic control
- Map of study area showing average daily traffic (ADT) of study roadways
- Table of existing peak hour average vehicle delay and level of service (LOS)

4. Existing with Project Conditions

- Table of trip generation for project
- Figure/map of trip distribution (in percent)
- Maps of study area with applicable peak hour turning movements (Project Only and Existing with Project)
- Table of Existing and Existing with Project intersection peak hour average vehicle delay and LOS

- Changes/Deficiencies to bike, pedestrian, and transit networks
- Traffic signal and other warrants
- Findings of project deficiencies
- Improvements for project deficiencies (include a map showing physical improvements)
- Scheduling and implementation responsibility of improvements
- Deficiencies of proposed improvements

5. Near-Term Baseline

- Table of trip generation for approved project(s)
- Figure and/or table of approved projects trip distribution (in percent)
- Map of study area with applicable peak hour turning movements (Near-Term Baseline)
- Table of intersection peak hour average vehicle delay and LOS
- Changes/deficiencies to bike, pedestrian, and transit networks
- Traffic signal and other warrants

6. Near-Term with Project Conditions

- Similar content to Existing with Project Conditions

7. Cumulative and Cumulative with Project Conditions

- Map of study area with Cumulative without Project peak hour turning movements
- Map of study area with Cumulative with Project peak hour turning movements
- Table of Cumulative and Cumulative with Project intersection peak hour average vehicle delay and LOS
- Changes/Deficiencies to bike, pedestrian, and transit networks
- Traffic signal and other warrants
- Findings of project deficiencies
- Improvements for project deficiencies (include a map showing physical improvements)
- Scheduling and implementation responsibility of improvements
- Deficiencies of proposed improvements

8. Construction Deficiencies

- Trips due to construction workers
- Truck trips and truck access routes

9. Phasing Deficiencies (for large projects only)

10. Appendices

- List of references
- List of authors
- Pedestrian, bicycle and vehicle counts
- Technical calculations for all analyses

APPENDIX B: LOS POLICIES OF NEIGHBORING JURISDICTIONS

San Luis Obispo County

Level of Service Standard. The County of San Luis Obispo level of service (LOS) standard is LOS D or better in urban areas and LOS C or better in rural areas. All County maintained roads are subject to County LOS standards (County, 1979). Significant impacts to San Luis Obispo County roadways are defined to occur when: (a) The addition of project traffic causes roadway operations to degrade from an acceptable level to an unacceptable level, or (b) if project-related traffic is added to a roadway operating at an unacceptable level (i.e., LOS D or worse in rural areas, LOS E or worse in urban areas).

Caltrans

Level of Service Standards. As stated in the Caltrans Guide for the Preparation of Traffic Impact Studies, "Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D." The TCR for Highway 46 indicates that LOS C or better is considered acceptable for the segment from Jardine Road to the San Luis Obispo/Kern County Line and within Kern County.

Significant impacts to Caltrans roadways are defined to occur when: (a) the addition of project traffic causes roadway operations to degrade from an acceptable level to an unacceptable level, or (b) if project-related traffic is added to a roadway operating at an unacceptable level.

APPENDIX C: FHWA VEHICLE CLASSIFICATION DEFINITIONS

FHWA VEHICLE CLASSES WITH DEFINITIONS

(Source: http://www.fhwa.dot.gov/policy/ohpi/vehclass.htm)

Class 1: Motorcycles – All two or three-wheeled motorized vehicles. Typical vehicles in this category have saddle type seats and are steered by handlebars rather than steering wheels. This category includes motorcycles, motor scooters, mopeds, motor-powered bicycles, and three-wheel motorcycles.

Class 2: Passenger Cars – All sedans, coupes, and station wagons manufactured primarily for the purpose of carrying passengers and including those passenger cars pulling recreational or other light trailers.

Class 3: Other Two-Axle, Four-Tire Single Unit Vehicles – All two-axle, four-tire vehicles, other than passenger cars. Included in this classification are pickups, panels, vans, and other vehicles such as campers, motor homes, ambulances, hearses, carryalls, and minibuses. Other two-axle, four-tire single-unit vehicles pulling recreational or other light trailers are included in this classification. *Because automatic vehicle classifiers have difficulty distinguishing class 3 from class 2, these two classes may be combined into class 2.*

Class 4: Buses – All vehicles manufactured as traditional passenger-carrying buses with two axles and six tires or three or more axles. This category includes only traditional buses (including school buses) functioning as passenger-carrying vehicles. Modified buses should be considered to be a truck and should be appropriately classified.

NOTE: In reporting information on trucks the following criteria should be used:

1. Truck tractor units traveling without a trailer will be considered single-unit trucks.
2. A truck tractor unit pulling other such units in a "saddle mount" configuration will be considered one single-unit truck and will be defined only by the axles on the pulling unit.
3. Vehicles are defined by the number of axles in contact with the road. Therefore, "floating" axles are counted only when in the down position.
4. The term "trailer" includes both semi- and full trailers.

Class 5: Two-Axle Six-Tire Single-Unit Trucks – All vehicles on a single frame including trucks, camping and recreational vehicles, motor homes, etc., with two axles and dual rear wheels.

Class 6: Three-Axle Single-Unit Trucks – All vehicles on a single frame including trucks, camping and recreational vehicles, motor homes, etc., with three axles.

Class 7: Four-Axle Single-Unit Trucks – All trucks on a single frame with four or more axles.

Class 8: Four or Fewer Axle Single-Trailer Trucks – All vehicles with four or fewer axles consisting of two units, one of which is a tractor or straight truck power unit.

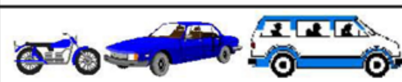
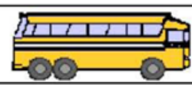
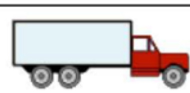
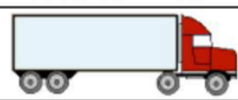
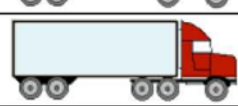
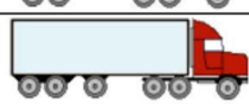
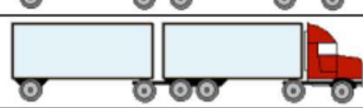
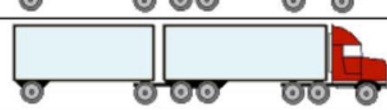
Class 9: Five-Axle Single-Trailer Trucks – All five-axle vehicles consisting of two units, one of which is a tractor or straight truck power unit.

Class 10: Six or More Axle Single-Trailer Trucks – All vehicles with six or more axles consisting of two units, one of which is a tractor or straight truck power unit.

Class 11: Five or fewer Axle Multi-Trailer Trucks – All vehicles with five or fewer axles consisting of three or more units, one of which is a tractor or straight truck power unit.

Class 12: Six-Axle Multi-Trailer Trucks – All six-axle vehicles consisting of three or more units, one of which is a tractor or straight truck power unit.

Class 13: Seven or More Axle Multi-Trailer Trucks – All vehicles with seven or more axles consisting of three or more units, one of which is a tractor or straight truck power unit.

Class	Description	Picture	ESAL*/Truck	Traffic Factor (car =1)
Class 1 Class 2 Class 3	Motorcycle Passenger Car Pickup Van		0.0004	1
Class 4	Bus		0.39	969
Class 5	2 Axles, 6-Tire Single Units		0.04	103
Class 6	3 Axles, Single Unit		0.49	1,236
Class 7	3 to 4 Axles, Single Trailer		2.12	5,296
Class 8	3 to 4 Axles, Single Trailer		0.45	1,116
Class 9	5 Axles, Single Trailer		1.19	2,970
Class 10	6 or More Axles, Single Trailer		1.06	2,650
Class 11	5 or Less Axles, Multi-Trailers		0.96	2,402
Class 12	6 Axles, Multi-Trailers		2.71	6,765
Class 13	7 or More Axles, Multi-Trailers		1.69	4,224

* ESAL = Equivalent Single Axle Load