Guidelines for

Traffic Impact Studies

Department of Transportation and Public Works & Permit and Resource Management Department | County of Sonoma | May 2016

Page Intentionally Left Blank

Table of Contents

I. INTRODUCTION 1
II. TRAFFIC IMPACT STUDIES OVERVIEW 1
III. TRAFFIC IMPACT ANALYSIS REQUIREMENTS 4
IV. TRAFFIC IMPACT STUDY PROTOCOL 6
V. TRAFFIC IMPACT ANALYSIS METHODS 7
1. Study Area: 7
2. Methodology: 7
Data Collection 7
Trip Distribution 7
Trip Generation 7
Level of Service & Operation Analysis 8
3. Future Roadway Improvements: 9
4. Future Land Use: 9
VI. THRESHOLDS 10
1. On-site Roads and Frontage Improvements: 10
2. Parking: 10
3. Emergency Access: 10
4. Alternative Transportation: 10
5. Road Safety: 10
6. Vehicle Queues: 10
7. Signal Warrants: 10
8. Turn Lanes: 10
9. Sight Lines: 11
10. County Intersection Operations: 11
11. County Roadway Operations: 11
State Highways: 12
Mitigation Measures: 12
VII. PEER REVIEW 13
VIII. ATTACHMENTS 13
A. STANDARDS FOR TRAFFIC IMPACT STUDIES 15
B. GENERAL ORGANIZATION OF A TRAFFIC IMPACT STUDY 18

1. Introduction and Summary 18
2. Background Information: Proposed Development (Site and Nearby) 18
3. Analysis of Existing Conditions without Project 19
4. Analysis of Future Conditions without Project 19
5. Trip Generation 20
6. Site Traffic Distribution and Assignment 20
7. Analysis of Existing Conditions plus Project 20
8. Analysis of Future Conditions plus Project 21
9. Recommended Improvements 21
10. Conclusions 21
11. Appendices 22

Cover Photo: Adobe Road, Sonoma County, CA

Page Intentionally Left Blank

Page Intentionally Left Blank

I. INTRODUCTION

The Permit and Resource Management Department (PRMD) and the Department of Transportation and Public Works (DTPW) are both responsible for the review and conditioning of private development projects. Traffic related conditions of approval must be based on an analysis of the potential traffic impacts that establishes a reasonable nexus between the impacts of the project and the required improvements or conditions. Conditions requiring traffic improvements must be roughly proportional to the impact of the project and/or reflect a fair share contribution toward improvements related to cumulative impacts. Recent case law has determined that conformance with adopted standards and/or payment of impact fees may not, in and of itself, provide sufficient mitigation.

II. TRAFFIC IMPACT STUDIES OVERVIEW

Roads are a critical public resource and constitute a major investment of the public's money. Traffic impacts caused by new development – a reduction in the traffic carrying capacity of the highways, more crashes and traffic congestion – can be very costly for state and local governments, as well as the broader community.

The impact of any proposed development on transportation system performance, whether it is small or large, depends on the number of trips generated by the proposed development, the location of the connection(s) to the transportation system, and the routes taken to and from the site. This impact is quantified by preparing a traffic impact study (TIS).

A TIS assesses the impact of a proposed development on the transportation system and recommends improvements to lessen or negate those impacts. It shall (i) identify any traffic issues associated with access from the site to the existing transportation network, (ii) outline solutions to potential problems, (iii) address the sufficiency of the existing and future transportation network, and (iv) present improvements to be incorporated into the proposed development. This assists public officials and developers to balance the interrelationships between efficient traffic movements with necessary land access. These studies are a critical component of the development review process, including but not limited to studies required under the California Environmental Quality Act (CEQA).

The complexities of a traffic impact analysis vary and depend upon the complexity of the proposed development, trip generation of the proposal, and the existing and future transportation network.

A TIS prepared by a registered Traffic Engineer, licensed to practice in the State of California, may be required when it appears that the criteria or any of the thresholds of significance identified in these guidelines may be exceeded. A TIS may be prepared by a registered Civil Engineer that has demonstrated appropriate expertise to the satisfaction of DTPW and is licensed to practice in the State of California. The TIS and any required peer review shall be provided at the sole expense of the applicant. Applications for development permits are considered incomplete until all required information is submitted and accepted as accurate and complete by PRMD. Peer review of traffic reports is *required* on all projects affecting State highways and may be required of any traffic study submitted by the applicant at the discretion of PRMD or DTPW. Alternatively, the County may contract directly for a TIS on behalf of an applicant and charge the cost to the applicant without requiring a peer review.

For projects that have languished and/or are being resubmitted, all previous traffic studies relating to the development that are more than two (2) years old will have to be updated. A previous traffic study that is less than two (2) years old for the development under review will *only* be acceptable if the context in the general area has not changed significantly (i.e. new development, changes in roadways, and/or land use or area plans have not occurred since preparation of the report).

The format and content of a TIS should follow the outline provided in Attachment A, unless a different scope of work is approved by both PRMD and DTPW. If the project affects a State highway, Caltrans minimum requirements must also be included as defined in Caltrans' *Guide for the Preparation of Traffic Impact Studies* (A copy of the Caltrans guide can be obtained from: http://www.dot.ca.gov/hq/traffops/).

Prior to the commencement of a TIS it is *strongly encouraged* to consult with PRMD and DTPW staff to determine the type of TIS needed, the study area, conditions to be evaluated, and methodology to be used. For winery related developments, the applicant should submit the winery trip generation form provided by PRMD for preliminary determination of the project's potential trip generation. The form should match what is proposed in the project application and description.

Trip generation rates from the most recent version of the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE) should be used in preparing the preliminary trip generation estimate. Local trip generation rates from comparable uses may be used in place of the ITE trip generation rates for land uses not included in the *Trip Generation Manual*. Wineries, wine tasting facilities, and distilleries are examples of land uses not included in the *Trip*

Generation Manual. Consult with DTPW staff regarding trip generation rates for wineries with tasting room(s).

Prior to use of local trip generation rates in a TIS, all data and assumptions for local trip generations rates shall be submitted to PRMD and DTPW staff for review and approval. However, the critical peak hour may vary from location to location and the trip generation rates should be chosen to match the conditions.

The following table provides a preliminary method for determining whether a TIS is required and what type of study should be completed based on a preliminary trip generation estimate of project traffic for the critical peak hour. DTPW and PRMD staff may require a traffic study to address specific issues related to a project's access, on-site circulation, parking or other issues that arise during the review process, regardless of the preliminary method used in the attached tables.

III. TRAFFIC IMPACT ANALYSIS REQUIREMENTS

Criteria[1]	Yes	No	Type of Traffic Analysis Required
A. Is the proposed project located on or accessed from a State Highway?			If Yes, answer A1; If No, answer Section B.
1. Is the state highway or area intersections currently or projected to operate at LOS D or worse?			If Yes, then a Full Traffic Study is required. If No, then answer A2.
2. Will the project generate over 10 Critical Peak Hour trips?			If Yes, then a Focused Traffic Study may be required.
B. Is the project located in a study area where one or more streets are currently or projected to operate at LOS D or worse?			If Yes, then a Full Traffic Study is required.
Is the project located in a study area where one or more intersections are currently or projected to operate at LOS E or worse?			If No, then answer Section C.
C. Is the proposed project located in a study area where streets are currently or projected to operate at LOS C or better? Is the proposed project located in a study area where intersections are currently or projected to operate at LOS D or better?			If Yes, then a Trip Generation Analysis is required and respond to questions C1 through C6 below.
1. Is the proposed project anticipated to generate less than 10 vehicle-trips in the critical peak hour?			If Yes, no further traffic analysis is required.
2. Is the proposed project anticipated to generate more than 10 but less than 25 vehicle-trips in the critical peak hour?			If Yes, only a Focused Traffic Study is required.

[1]Criteria applies to all controlled intersections except for driveways and minor side streets that have less than 30 vehicle trips per hour per approach or exclusive left turn movement.

3.	Is the proposed project anticipated to generate more than 25 vehicle-trips in the critical peak hour?			If Yes, conduct a Full Traffic Study.
4.	Is the project located in an area with potential hazard conditions?			If Yes, a Focused Traffic Study is required.
5.	Is the proposed project anticipated to have a significant effect on the environment and may require an Environmental Impact Report (EIR)?			If Yes, a Full Traffic Study is required for incorporation into an EIR.
6.	Is the proposed project not easily categorized into one of the above categories?			If Yes, contact the Permit and Resource Management Department (PRMD) and the Department of Transportation and Public Works (DTPW) for assistance.

IV. TRAFFIC IMPACT STUDY PROTOCOL

A meeting with staff from PRMD and DTPW is strongly recommended prior to beginning the study to define the required study area and scope of work. Consultation with Caltrans is required if the project is located on or near a State highway. Topics for discussion at an initial meeting could include definition of the study area, location and timing of traffic counts, trip generation and trip generation rates, directional distribution of traffic, trip assignment, intersection analysis and methods of projection of build-out volumes.

The TIS shall include analysis of local roadways and intersections located in the project vicinity, including all intersections which are operating near or below County General Plan level of service thresholds. Traffic studies should also identify and evaluate the nearest access to State highways or nearest major County roadway, and roadways from the proposed project to the nearest State highway or major County roadway.

Revisions to the TIS shall be made when required by PRMD or DTPW. The need for revisions is based on completeness, accuracy, consistency with standards, impact evaluation methodology and assumptions, and compatibility of the access or development plan, and/or other considerations.

Five (5) copies of the TIS shall be submitted to PRMD and one (1) copy shall be submitted to DTPW-Land Development. The report will be referred to Caltrans and other agencies (i.e. SCTA, affected cities) for comment as warranted. Once accepted by PRMD and DTPW, the TIS will be incorporated into the environmental document for the project. The environmental document will then be made available for public review and circulated to responsible agencies prior to the hearing date.

The Department shall be free to use an approved TIS for any purpose whatsoever.

V. TRAFFIC IMPACT ANALYSIS METHODS

1. **Study Area:** Traffic studies shall identify the study area including the nearest access to State highways or major County roadways in the vicinity and roadways to/from the proposed project to the nearest state highway of major County roadway. If the area is significantly affected by existing regional traffic patterns, then a larger study area may be needed to adequately address the traffic issues.

   Maps and graphs shall be to scale and should include dimensioned road geometrics (e.g., width, radii, etc.). Intersection geometrics shall include bus stops, parking areas, pedestrian crossings, driveway restrictions, etc.

2. **Methodology:**

   ### Data Collection

   Where required, traffic counts shall be collected during the estimated peak period or time of year for the proposed project, during clear environmental conditions, during regular school session, with no adjacent construction activities or special events. Any deviation must be approved by DTPW staff. Depending on the proposed location and use, weekday daily, AM and PM peak hour, and/or weekend daily and peak hour counts may be required.

   ### Trip Distribution

   Standard procedure for forecasting future trip distribution upon County traffic networks will require the preparer to utilize the most recent version of the County wide transportation forecasting model, which is maintained and updated by the Sonoma County Transportation Authority (SCTA), as a basis for future trip assignments. This process will normally require coordination with SCTA to obtain future roadway forecasts.

   More detailed information such trip origin/destination studies, marketing studies, employee address lists, or other information concerning origin of trip attractions to the proposed development may be used to check trip distribution projections. A map showing the percentage of project traffic on each street must be provided as part of the graphic material.

   ### Trip Generation

   Traffic studies shall utilize the most current ITE trip generation rates or other measured counts as approved by DTPW. If the development is staged, the trip generation related to full development shall be used for the analysis.

The preparer should consider the selection of the weighted average rate or the fitted curve for the chosen ITE land use code when determining the project's trip generation. Selection of either the weighted average rate or the fitted curve should be justified and submitted to DTPW for review.

Local trip generation rates may be used in place of trip generation rates in the *Trip Generation Manual.* This would apply to land uses not included in the *Trip Generation Manual*. Wineries, wine tasting facilities, and distilleries are examples of land uses not included in the *Trip Generation Manual.* Prior to use of local trip generation rates in a TIS, all data and assumptions for local trip generation rates shall be submitted to PRMD and DTPW staff for review and approval. Consult with DTPW staff regarding trip generation rates for wineries with tasting room(s).

Pass-by trip reductions consider site trips drawn from the existing traffic stream on an adjacent street, recognizing that trips drawn to a site would otherwise already traverse the adjacent street regardless of existence of the site. Pass-by trip reductions allow a percentage reduction in the forecast of trips otherwise added to the adjacent street from the proposed development. The reduction applies only to volumes on adjacent streets, not to ingress or egress volumes at entrances serving the proposed site. Unless otherwise approved by DTPW, the pass-by rates utilized shall be those reported in the most recent version of the ITE Trip Generation Handbook. Pass by rates shall only be used upon DTPW approval.

Internal capture rates consider site trips "captured" within a mixed use development, recognizing that trips from one land use can access another land use within a site development without having to access the adjacent street system. Internal trip reductions and modal split assumptions require analytical support and approval from DTPW.

Daily trips may be reduced by allowing for public transit when a transit stop is located within one thousand (1,000) feet of the development. The maximum reduction allowed is five (5) percent. Transit reductions do not apply to hotels, restaurants, retail, or financial uses.

Level of Service & Operation Analysis

Methodologies from the most recent version of the *Highway Capacity Manual* shall be used to determine operating conditions on roadway segments, and signalized and unsignalized intersections. Alternatives to the *Highway Capacity Manual* methodologies shall be approved by DTPW prior to use in a TIS. At intersections controlled by a traffic signal,

existing traffic signal timing data shall be used for all analysis conditions and is available from DTPW or Caltrans. For unsignalized intersections the study shall provide the overall intersection operating condition as well as the operating condition for the worst movement.

Analysis of traffic conditions using a microsimulation model may be required by DPTW. A minimum of ten (10) average model runs, excluding any outlying/anomalous results, shall be required when microsimulation is used.

Calculations, assumptions, and supporting data for the conclusions presented shall be submitted as part of the TIS. The calculations shall be comprehensive and easily understood.

3. **Future Roadway Improvements:** All assumed circulation network improvements used in the analysis shall be clearly stated in the report. Planned roadway improvements shall only be assumed completed for use in the TIS if the improvement project is fully funded and programmed for construction. The TIS must identify the specific improvements, funding source, and time-frame for completion of any included roadway improvements.

4. **Future Land Use:** Projection of future land uses and development should be made in consultation with planning staff at PRMD. A minimum 10-year growth projection is required for an interim evaluation (if necessary) and a long-term growth projection is required for cumulative impact analysis consistent with the General Plan. Long-term projected traffic volumes shall be developed using either the most recent version of the County wide transportation forecasting model from SCTA, or a list of projects approved but not yet constructed, projects that are pending approvals, as well as general projections of growth within or affecting the study area.

   Data on projects in the study area that have been approved but not yet constructed, projects that are pending approvals, as well as general projections of growth within or affecting the study area is available from PRMD. A tabulation of land uses by type and parcel number with the respective trip generation rates must be identified.

VI. THRESHOLDS

A project would have a significant traffic impact if it results in any of the following conditions:

1. **On-site Roads and Frontage Improvements:** Proposed on-site circulation and street frontage would not meet the County's minimum standards for roadway or driveway design, or potentially result in safety hazards, as determined by the County in consultation with a registered Traffic Engineer or Civil Engineer.

2. **Parking:** Proposed on-site parking supply does not meet County standards and does not adequately accommodate parking demand.

3. **Emergency Access:** The project site would have inadequate emergency access.

4. **Alternative Transportation:** The project provides inadequate facilities for alternative transportation modes (e.g., bus turnouts, bicycle racks, pedestrian pathways) and/or the project creates potential conflicts with the County's Complete Streets Policy, other adopted policies, plans, or programs supporting alternative transportation.

5. **Road Safety:** Road design features that do not meet standards (e.g., sharp curves or skewed intersections) or any perceived incompatible uses (e.g., farm equipment, major bicycle route, rail or pedestrian crossings).

6. **Vehicle Queues:** Project causes or exacerbates 95th percentile turning movement queues exceeding available turn pocket capacity.[2]

7. **Signal Warrants:** The addition of the project's vehicle or pedestrian traffic causes an intersection to meet or exceed Caltrans or CA-MUTCD signal warrant criteria.

8. **Turn Lanes:** The addition of project traffic causes an intersection to meet or exceed criteria for provision of a right or left turn lane on an intersection approach.[3]

---

[2]Based upon HCS analysis methodology for signalized intersections and formula contained in November 2001 ITE Article *(Estimation of Queue Length at Unsignalized Intersections*) for side street stop sign controlled intersections, or its equivalent.

[3]Based upon Caltrans criteria for state highways and *Intersection Channelization Design Guide* (NCHRP Report 279, Transportation Research Board, 1985) for County roadways.

9. **Sight Lines:** The project constructs an unsignalized intersection (including driveways) and/or adds traffic to an existing unsignalized intersection approach that does not have adequate sight lines based upon Caltrans criteria for State highway intersections and AASHTO criteria for County roadway intersections.

10. **County Intersection Operations:** The County level of service standard for County intersection operations is to maintain a Level of Service D or better pursuant to General Plan Policy CT-4.2. The project would have a significant traffic impact if the project's traffic would cause an intersection currently operating at an acceptable level of service (LOS D or better) to operate at an unacceptable level (LOS E or worse).

    If the intersection currently operates or is projected to operate below the County standard, the project's impact is considered significant and cumulatively considerable if it causes the average delay to increase by five seconds or more.[4] The delay will be determined by comparing intersection operations with and without the project's traffic for both the existing baseline and projected future conditions.

    The above criteria applies to all controlled intersections except for driveways and minor side streets that have less than 30 vehicle trips per hour per approach or exclusive left turn movement.

11. **County Roadway Operations:** The County level of service standard for County roadway operations is to maintain a Level of Service C pursuant to General Plan Policy CT-4.1; or, for specific roadway segments, the level of service standard adopted in the General Plan Figure CT-3. The project would have a significant traffic impact if the project's traffic would cause a road currently operating at an acceptable level of service (LOS C or better) to operate at an unacceptable level (LOS D or worse).

    If a road segment currently operates or is projected to operate below the County standard, the project's impact is considered significant and cumulatively considerable if it causes the average speed to decrease by the amounts shown in Table 1. The change will be determined by comparing roadway conditions with and without the project's traffic for both the existing baseline and projected future conditions.

[4] Average delay shall be used as defined in the most recent version of the Highway Capacity Manual for the signalized and all-way stop intersections and delay for any approach or turning movement shall be used for side street stop sign controlled intersections.

TABLE 1: TRAFFIC IMPACT THRESHOLDS FOR 2-LANE COUNTY HIGHWAYS AND RURAL CLASS 1 ROADWAYS WITH LEVEL OF SERVICE BELOW LOS C

If the Existing or Projected LOS without project is:	Then the existing average travel speed is (miles per hour [mph])[5]:	The project impact is considered significant if the decrease in average travel speed associated with the project is:
D	40-45 mph	2 mph
E	40 mph or less	1 mph
F		0.5 mph

These criteria apply to Rural Class 1 roadways. Other roadways will be evaluated on a case-by-case basis.

State Highways: [6] Caltrans' general level of service policy on State highways is to maintain the level of service at the transition between LOS C and LOS D. However, level of service goals for specific Caltrans facilities should be taken from transportation planning documents for that facility. A project would have a significant impact if the project traffic would cause the operation of a State highway to operate below LOS C. If a State highway currently operates or is projected to operate below the standard, the project's impact is considered significant and cumulatively considerable if it does not maintain the existing "measure of effectiveness". Measures of effectiveness are: (a) control delay per vehicle for signalized intersections; (b) average control delay per vehicle for unsignalized intersections; (c) average speed for two lane highways, and (d) density for multi-lane highways.[7]

Mitigation Measures: In order to reduce project impacts to levels of insignificance, the proposed mitigation measures must result in post-development affected intersections and roadways that have an LOS that is no worse than the County General Plan LOS standard

[5]The year 2000 Highway Capacity Manual does not provide an average travel speed breakpoint between LOS E and LOS F operation.

[6]State Highway thresholds are based on *Caltrans Guide for the Preparation of Traffic Impact Studies*, State of California Department of Transportation, December 2002. The most recent version of this handbook may be found on the internet. (http://www.dot.ca.gov/hq/traffops/)

[7]Measures of effectiveness are defined in the most recent version of the *Highway Capacity Manual*, Transportation Research Board, National Research Council.

for roadways and intersections, reduce safety impacts to insignificance by bringing the site up to Caltrans or AASHTO design standards, and provide adequate parking and alternative transportation facilities consistent with County plans and policies. The scope of the mitigation measures must reduce the project impacts below the identifiable thresholds mentioned.

The payment of County wide traffic impact fees in and of itself may not be adequate to mitigate a project's local impacts if the existing facilities are already below standard, and the required improvements are not fully funded or programmed to be operational at the time of project completion. The timing of the mitigation measure implementation may require construction of off-site improvements by the developer using a Reimbursement Agreement to pay for any oversized facilities associated with the public share of the improvement pursuant to Section 26-670 of the Sonoma County Code. Traffic impact fees do not address specific impacts related to a particular project. Payment of the traffic impact fee only mitigates or addresses cumulative countywide impacts related to projects that are programmed or listed to be funded by the fees on file with DTPW.

The project's contribution to cumulative impacts must also be addressed in proportion to the project's impact. A proportional fair share contribution to a traffic improvement related to a cumulative impact may be required based on the "Methodology for Calculating Equitable Mitigation Measures" included in Caltrans' G*uide for the Preparation of Traffic Impact Studies* as referenced above.

Mitigation measures for both project impacts and cumulative impacts must be implemented prior to occurrence of the impact. An analysis of the timing, funding and responsibilities for implementation of mitigation measures should be included in the traffic study.

VII. PEER REVIEW

The County may require a peer review of any TIS submitted by an applicant. The full cost of any traffic studies, required revisions, supplemental reports or peer reviews shall be borne by the applicant. Peer review of traffic studies are required on all projects affecting a State highway.

VIII. ATTACHMENTS

A. Standards for Traffic Impact Studies
B. General Organization of a Traffic Impact Study
C. Complete Streets Policy of Sonoma County

Page Intentionally Left Blank

A. STANDARDS FOR TRAFFIC IMPACT STUDIES

The project applicant shall retain a registered Traffic Engineer who is licensed to practice in the State of California. A TIS may be prepared by a registered Civil Engineer that has demonstrated appropriate expertise to the satisfaction of DTPW and is licensed to practice in the State of California. Said Engineer shall conduct objective qualitative and/or quantitative analysis, and submit a written traffic impact study that includes each of the following areas that apply to the proposed project. Please note that when a concern is identified, the Engineer shall propose a solution and identify funding for the solution.

Frontage Improvements: Identify and discuss all aspects of the road(s) fronting or providing access to the proposed project which do not meet the County's minimum standards for roadways or driveways.

Parking: Discuss whether the parking associated with the proposed project meets County standards and adequately accommodates parking demand.

Emergency Access: Discuss proposed site designs that (may) result in inadequate emergency access.

Road Safety: Discuss any road design features that do not meet standards (e.g., sharp curves or skewed intersections) or any perceived incompatible uses (e.g., farm equipment, major bicycle route, rail or pedestrian crossings).

Vehicle Queues: Identify situations where either the addition of project traffic causes or exacerbates 95th percentile turning movement queues exceeding available turn pocket capacity.

Signal Warrants: Identify situations where the addition of project vehicles or pedestrian traffic will cause an intersection to meet or exceed Caltrans or CA-MUTCD signal warrant criteria.

Turn Lanes: Identify situations where the addition of project traffic at an intersection, including project driveways, causes an intersection to meet or exceed criteria for provision of a right or left-turn lane on an intersection approach.

Sight Distance: Identify situations where the proposed project constructs an unsignalized intersection (including driveways) and/or adds traffic to an existing un-signalized intersection(s), including project related driveways that have inadequate sight distance based on Caltrans or AASHTO criteria. Sight distance for both inbound and outbound project traffic shall be determined. A vertical profile and horizontal sight distance analysis may be required at the discretion of DTPW.

Pre-Project Traffic Concerns: Identify and discuss any current traffic problems in the local area such as high accident locations (if this applies, include a collision diagram(s) and accident rate analysis) or confusing intersections.

Neighborhood Traffic Sensitivities: Identify and discuss the proximity of adjacent neighborhoods or other areas that may be perceived as adversely impacted by the proposed project including parking, loading, and access ways.

Site Driveways: Identify and discuss proposed or existing site driveway(s) that are in close proximity to other driveways or intersections that are adversely impacted by the proposed project.

Transit Operations: Identify existing and planned transit facilities and discuss the potential for the proposed project to enhance or adversely impact transit operations.

Pedestrian & Bicycle Operations: Use the most recent County Bicycle and Pedestrian Plan to identify existing and planned bicycle and pedestrian routes in the study area and discuss the potential for the proposed project to enhance or adversely impact pedestrian and bicycle safety.

Alternative Transportation Policies: Identify and discuss how the proposed project will be consistent with the County's Complete Streets Policy. Identify any conflicts with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks, etc.).

Truck Operations: When it is anticipated that the number of truck deliveries and service calls will exceed an average of 10 per day, discuss the ability of the proposed project site design to adequately handle truck loading demand and traffic circulation. Discuss the potential for increased wear and tear associated with project truck operations on County roadways, including a traffic index (TI) analysis.

Response to Expressed Concerns: Respond to traffic circulation comments on the proposed project that have been received by others, including public agencies (e.g., Caltrans, Cities, SCTA).

Level of Service: Identify existing, projected, and future conditions, including documentation of all assumptions of land use and planned improvements.

Promotional Events: For projects that plan on promotional events (such as wineries, tasting rooms, distilleries) the traffic study shall evaluate the impacts of the events on the local transportation system.

B. GENERAL ORGANIZATION OF A TRAFFIC IMPACT STUDY

Traffic studies shall be organized to present all required information using the format, content, and standards mentioned throughout these guidelines. A consistent format and standard will provide for easier comparison and evaluation of the report by County staff and decision-making bodies, thus allowing for quicker review. The TIS must clearly state all assumptions and references used.

The following is a general expectation of the organization of a TIS, but the required contents may vary depending on the proposed project.

1. Introduction and Summary

a) Purpose of report and study objectives

b) Executive Summary
   i. Site location and study area
   ii. Description of the proposed development
   iii. Principal findings
   iv. Conclusions
   v. Recommendations

2. Background Information: Proposed Development (Site and Nearby)

a) List of all future/planned transportation improvements assumed in the analysis ①

b) Description of on-site development
   i. Description of the parcel
   ii. General terrain features
   iii. Location within the jurisdiction and region
   iv. Current or proposed zoning of the subject property
   v. Map of site location showing the proposed development, including all parking and access driveways, easements and pedestrian access.
   vi. Days and hours of operation
   vii. Project purpose or goal and planned completion date or phasing

c) Description of geographic scope and limits of study area

d) Plan at an engineering scale of the existing and proposed site uses

e) Description and map or diagram of nearby uses, including parcel zoning

f) Description and map or diagram of existing roadways

g) Description and map or diagram of fully funded and programmed improvements to roadways, intersections, and other transportation facilities within the study area

3. Analysis of Existing Conditions without Project

a) Collected weekday daily, AM and PM peak hour, and/or weekend daily and peak hour traffic volumes in the study area, tabulated and presented on diagrams with counts provided in an appendix

b) Analyses for intersections and roadways identified by DTPW
   i. Delay and Level of Service (LOS) are tabulated and LOS is presented on diagrams for each lane group with calculations provided in an appendix
   ii. 95th percentile queue length(s) tabulated and compared to existing storage lane lengths

c) Provide analyses of existing pedestrian and bicycle facilities, and bus route(s) and segment(s), tabulated and presented on diagrams ②

d) Key road geometric features for roadways serving the proposed development, including roads, intersections, storage lengths, sharp curves, pavement width, shoulder type and width, pavement condition, and the existing access to the project site.

e) Posted speed limits within the study area

f) Speed Study (if requested by DTPW) ③

g) Collision history and analysis at all study intersections and/or roadway segments
   i. A tabulation of collisions and collision rates for at least the previous three years within the study area
   ii. A comparison of the collision rate with the most recent published statewide averages for similar roads with particular attention to above average crash density and rates

h) Sight distance analysis at all entrances and intersections providing access to project site ④

4. Analysis of Future Conditions without Project

a) A listing of approved projects but not yet constructed, projects that are pending approvals, as well as general projections of growth within or affecting the study area as available from PRMD

b) Description of and the justification for the method and assumptions used to forecast future weekday daily, AM and PM peak hour, and/or weekend daily and peak hour traffic volumes in the study area

for the horizon year, tabulated and presented on diagrams

c) Analyses for intersections and roadways as identified by DTPW
   i. Delay and Level of Service (LOS) are tabulated and LOS is presented on diagrams for each lane group with calculations provided in an appendix
   ii. 95th percentile queue length(s) tabulated and compared to existing storage lane lengths

d) Provide analyses of planned pedestrian and bicycle facilities, and bus route(s) and segment(s) tabulated and presented on diagrams ②

5. Trip Generation

a) Site trip generation, with tabulated data, including justification for deviations from latest ITE rates, if appropriate

b) Description and justification of internal capture reductions for mixed use developments and pass-by trip reductions, if appropriate, including table of calculations used

c) Parking generation analysis

6. Site Traffic Distribution and Assignment

a) Description of methodology used to distribute trips, with supporting data

b) Description of the direction of approach for site generated traffic and diagrams showing the traffic assignment to the road network serving the site for the appropriate time periods

7. Analysis of Existing Conditions plus Project

a) Weekday daily, AM and PM peak hour, and/or weekend daily and peak hour volumes plus project generated traffic volumes on the highway network in the study area, tabulated and presented on diagrams

b) Analyses for intersections and roadways identified by DTPW
   i. Delay and Level of Service (LOS) are tabulated and LOS is presented on diagrams for each lane group with calculations provided in an appendix
   ii. 95th percentile queue length(s) tabulated for project traffic and existing plus project traffic and compared to existing storage lane lengths

c) When the proposed development would indicate a significant potential for, or impact to, walking, bike or transit trips either on- or off-site, provide analyses of existing pedestrian and bicycle facilities, and bus route(s) and segment(s) tabulated and presented on diagrams

8. Analysis of Future Conditions plus Project

a) Forecasted weekday daily AM and PM peak hour, and/or weekend daily and peak hour volumes plus project generated traffic volumes on the highway network in the study area for the horizon year, tabulated and presented on diagrams

b) Analyses for intersections and roadways identified by DTPW
   i. Delay and Level of Service (LOS) are tabulated and LOS is presented on diagrams for each lane group with calculations provided in an appendix
   ii. 95th percentile queue length(s) tabulated for project traffic and future plus project traffic and compared to existing storage lane lengths

c) When the proposed development would indicate significant potential for, or impact to, walking, bike or transit trips either on- or off-site, provide analyses of existing and planned pedestrian and bicycle facilities, and bus route(s) and segment(s) tabulated and presented on diagrams ②

9. Recommended Improvements

a) Description and diagram of the location, nature, and extent of the proposed improvements and mitigation measures

b) Descriptions of each recommended improvement and mitigation and the timing, phasing plan, or required thresholds for implementation

c) If travel demand management (TDM) measures are proposed, description of methodology used to calculate the effects of TDM measures with supporting data

d) Analyses for all proposed and modified intersections in the study area under existing plus project and future plus project conditions with proposed improvements and mitigation measures
   i. Delay and Level of Service (LOS) are tabulated and LOS presented on diagrams for each lane group with calculations provided in an appendix
   ii. For intersections expected to be signalized, CA-MUTCD Signal Warrant analysis presented in tabular form with calculations provided in an appendix.

10. Conclusions

a) Clear, concise description of the study findings

11. Appendices

a) Data collected for the study including traffic counts (e.g., average daily, peak hour turning movements) and work sheets

b) Projected land use assumptions (table)

c) Reference sources

d) Study participants and persons contacted

e) Completed winery trip generation form (if applicable)

f) Completed special events trip generation form (if applicable)

g) Trip generation rate data and calculations (if applicable)

Footnotes

① Future/Planned transportation improvements shall only be assumed completed for use in the TIS *if the improvement project is fully funded and programmed for construction*.

② Analysis of pedestrian, bicycle, and/or transit facilities should be provided in instances where such facilities and services are present in the area or are planned for the area, or if the development is of a type that can be expected to generate significant trips of the appropriate type. Generally speaking, isolated developments in rural areas will not have a need for pedestrian, bicycle, or transit analysis.

③ Speed studies may be necessary when there is reason to believe that operational or geometric conditions on a roadway result in speeds that vary considerably from the posted speed limits.

④ Sight distance information and measurements or calculations is necessary at the land use permit stage of development. Substandard sight distance at locations has resulted in the need for developers to rebuild roadways, conduct extensive grading operations, or relocate planned entrances.

County of Sonoma
State of California

THE WITHIN INSTRUMENT IS A CORRECT COPY OF THE ORIGINAL ON FILE IN THIS OFFICE

ATTEST: NOV 17 2015

VERONICA A. FERGUSON, Clerk/Secretary

BY C Woodson
DEPUTY CLERK/ASST SECRETARY

Item Number: 23

Date: November 17, 2015 Resolution Number: 15-0463

Jennifer Barrett

☐ 4/5 Vote Required

Resolution Of The Board Of Supervisors Of The County Of Sonoma, State Of California, Reaffirming Its Commitment To Complete Streets Act Of 2008 (AB 1358) And The Legislative Consistency Of The Sonoma County General Plan Circulation And Transit Element And The 2010 Sonoma County Bicycle And Pedestrian Plan.

Whereas, the term "Complete Streets" describes a comprehensive, integrated transportation network with infrastructure and design that allows safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation seniors, children, youth and families; and

Whereas, the County of Sonoma acknowledges the benefits and value for the public health and welfare of reducing vehicle miles traveled and increasing transportation by walking, bicycling, and public transportation; and

Whereas, the County of Sonoma recognizes that the planning and coordinated development of Complete Streets infrastructure provides benefits for local governments in the areas of infrastructure provides benefits for local governments in the areas of infrastructure cost savings; public health; and environmental sustainability; and

Whereas, the State of California has emphasized the importance of Complete Streets by enacting the California Complete Streets Act of 2008 (also known as AB 1358), which requires that when cities and counties revise general plans, they identify how they will provide for the mobility needs of all users of the roadways, as well as through Deputy Directive 64, in which the California Department of Transportation explained that it "views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system;" and

Whereas, the California Global Warming Solutions Act of 2006 (known as AB 32) sets a mandate for the reduction of greenhouse gas emissions in California, and the Sustainable Communities and Climate Protection Act of 2008 (known as SB 375) requires emissions reductions through coordinated regional planning that integrates transportation, housing, and

land-use policy, and achieving the goals of these laws will require significant increases in travel by public transit bicycling and walking; and

Whereas, numerous California counties, cities, and agencies have adopted Complete Streets policies and legislation in order to further the health, safety, welfare, economic vitality, and environmental well-being of their communities; and

Whereas, on August 26, 2010 the Board of Supervisors adopted Resolution No. 10-0636 adopting the 2010 Sonoma County Bicycle and Pedestrian Plan, and amendments to the Circulation and Transit and Open Space and Resource Conservation Elements of the Sonoma County General Plan to incorporate policies in recognition of the 2008 California Complete Streets Act and the 2006 Global Warming Solutions Act; and

Whereas, those amendments to the Circulation and Transit and Open Space and Resource Conservation Elements of the Sonoma County General Plan brought the County of Sonoma into compliance with the 2008 Complete Streets Act and allowed Sonoma County to remain eligible for state and federal funding, as recognized by the Metropolitan Transportation Commission (MTC); and

Whereas, the County of Sonoma therefore, in light of the foregoing benefits and considerations, wishes to improve its commitment to Complete Streets and desires that its streets form a comprehensive and integrated transportation network promoting safe, equitable, and convenient travel for all users while preserving flexibility, recognizing community context, and using the latest and best design guidelines and standards; and

Whereas, the MTC has released new direction requiring a significant revision to Circulation Element of a General Plan after January 1, 2011, not before, to comply with the Complete Streets Act; and

Whereas, this Complete Streets Resolution incorporating MTC's nine required complete streets elements as incorporated herein by reference as Attachment A, will ensure the County of Sonoma will remain eligible for state and federal funding, as recognized by the MTC.

Now, Therefore, Be It Resolved that the Sonoma County Board of Supervisors reaffirms its consistency with the Complete Streets Act of 2008 and makes the following findings:

1. That the previous adoption of Resolution #10-0636 on August 26, 2010 amending the Sonoma County General Plan and adopting the 2010 Bicycle and Pedestrian Plan brought the County of Sonoma into compliance with the Complete Streets Act of 2008 (AB 1358).
2. This Resolution and attached Complete Streets Policy reaffirms the County of Sonoma's commitment to the Complete Streets Act and eligibility for state and federal funding through the MTC.
3. That the County of Sonoma adopts the Complete Streets Policy attached

hereto as Attachment A, and made part of this Resolution, and that said attachment is hereby approved and adopted.

4. That the next substantial revision of the Sonoma County General Plan Circulation and Transit Element shall carry forward the existing Complete Streets policies and principles consistent with the California Complete Streets Act of 2008 (AB 1358) and with the Complete Streets Policy adopted by this resolution.

Be it Further Resolved that he Board of Supervisors designates the Clerk of the Board as the custodian of the documents and other materials which constitute the record of proceedings upon which the decision herein is based. These documents may be found at the office of the Clerk of the Board, 575 Administration Drive, Room 100-A, Santa Rosa, California 95403.

Supervisors:

Rabbitt: Aye	Zane: Aye	Gore: Aye	Carrillo: Aye	Gorin: Aye
Ayes: 5	Noes: 0		Absent: 0	Abstain: 0

So Ordered.

Attachment A

This Complete Streets Policy was adopted by Resolution No. 15-0463 by the County of Sonoma Board of Supervisors on November 17, 2015.

Complete Streets Policy of Sonoma County

A. Complete Streets Principles

1. **Complete Streets Serving All Users.** The County of Sonoma expresses its commitment to creating and maintaining Complete Streets that provide safe, comfortable, and convenient travel along and across streets (including streets, road, highways, bridges, and other portions of the transportation system) through a comprehensive, integrated transportation network that serves all categories of users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operator of public transportation, seniors, children, youth and families.
2. **Context Sensitivity.** In planning and implementing streets projects, the departments of agencies of the County of Sonoma shall maintain sensitivity to local conditions in both residential and business districts, as well as urban, suburban, and rural areas, and shall work with residents, merchants, and other stakeholders to ensure that a strong sense of place ensues. Improvements that will be considered include sidewalks, shared use paths, bicycle lanes, bicycle routes, paved solders, street trees and landscaping, planting strips, accessible curb ramps, crosswalks, refuge islands, pedestrian signals, signs, street furniture, bicycle parking facilities, public transportation stops and facilities, transit priority signalization, and other features assisting in the provision of safe travel for all users, such as traffic calming circles, transit bulb outs, and road diets, and those features identified in the 2010 Sonoma County Bicycle and Pedestrian Plan.
3. **Complete Streets Routinely Addressed by All Departments.** All relevant departments and agencies of the County of Sonoma shall work towards making Complete Streets practices a routine part of everyday operations, approach every relevant project, program, and practice as an opportunity to improve streets and the transportation network for all categories of users, and work in coordination with other departments, agencies, and jurisdictions to maximize opportunities for Complete Streets, connectivity, and cooperation. The following projects provide opportunities: pavement resurfacing, restriping, accessing above and underground utilities, signalization operations or modifications, and maintenance of landscaping/related features.
4. **All Projects and Phases.** Complete Streets infrastructure sufficient to enable reasonably safe travel along and across the right of way for each category of users shall be incorporated into all planning, funding, design, approval, and implementation processes for any construction, reconstruction, retrofit, maintenance, operations, alteration, or repair of streets (including streets, roads, highways, bridges, and other portions of the transportation system), except that specific infrastructure for a given category of users may be excluded if an exemption is approved via the process set for in C.1 of this policy.

B. Implementation

1. **Plan Consultation and Consistency.** Maintenance, planning, and design of projects affecting the transportation system shall be consistent with the local bicycle, pedestrian, transit, multimodal, and other relevant plans, except that where such consistency cannot be achieved without negative consequences, consistency shall not be required in the head of the relevant department provides written approval explaining the basis of such deviation. Such deviations shall be presented to the Sonoma County Bicycle and Pedestrian Advisory Committee (BPAC) early in the planning and design stage, to ensure the BPAC has an opportunity to provide comments and recommendations.
2. **Street Network/Connectivity.** As feasible, the County of Sonoma shall incorporate Complete Streets infrastructure into existing streets to improve the safety and convenience of users and to create employment, with the particular goal of creating a connected network of activities accommodating each category of users, and increasing connectivity across jurisdictional boundaries and for existing and anticipated future area s of travel origination or destination.
3. **Bicycle and Pedestrian Advisory Committee Consultant.** Transportation projects shall be reviewed by the BPAC early in the planning and design stage, to provide the BPAC an opportunity to provide comments and recommendations regarding Complete Streets features to be incorporated into the project.
4. **Evaluation.** All relevant agencies or departments shall perform evaluations of how well the streets and transportation network of the County of Sonoma are serving each category of users by collecting baseline data and collecting follow up data on a regular basis.

C. Exceptions

Complete streets principles and practices will be included in street construction, reconstruction, repaving, and rehabilitation projects, as well as other plans, specifications and manuals, except in one or more of the following circumstances:

1. A project involves only ordinary or emergency maintenance activities such as cleaning, sweeping, spot repair, concrete joint repair, or pothole filling, or when interim measures are implemented to preserve assets in serviceable condition.
2. A project would be infeasible due to the excessive and disproportionate costs of establishing a bikeway, walkway or transit enhancement as part of a project.

The Director of Public Works and the Director of the Permit and Resource Management Departments shall jointly determine if the construction is not feasible or cost effective because of significant or adverse environmental constraints to waterways, flood plains, native vegetation, wetlands or other habitat areas for sensitive species or due to potential impacts on neighboring land uses, including impacts and costs of right of way acquisitions.

Exceptions shall be in written form documenting the reasons and associated facts such as in a memo, staff report, CEQA document or draft resolution of approval and made available to the public at least 21 days prior to project approval.

1. **Leadership Approval for Exceptions.** Plans or projects that seek exception from the complete streets approach must provide written findings of how exceptional circumstances dictated that accommodations for all modes were not to be included in this project. The memorandum should be signed by the County of Sonoma Transportation and Public Works Director or an equivalently senior staff person. Projects that are granted exceptions must be made publically available for review. Federal guidance on exceptions can be found from the Federal Highway Administration (FHWA) website, *Accommodating Bicycle and Pedestrian Travel*.