Traffic Impact Analysis Guidelines

County of Nevada

Community Development Agency

Department of Public Works

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GENERAL

The County of Nevada (County) has established the following guidelines to determine the need for traffic analysis for development projects, and to establish parameters for the preparation of a Traffic Memo or a Traffic Study. These guidelines are intended to ensure consistency of analyses and adequacy of information to aid County staff and decision makers in the consideration of project approval with regard to impacts to the County's transportation system and in the assessment of associated fees.

DETERMINING NEED FOR TRAFFIC ANALYSIS

A Traffic Memo or Study may be required for any proposed development project for which at least one of the following criteria is met:

- Project will substantially change the off-site transportation system or connections to it, or may create or exacerbate a hazard to public safety.
- Project is inconsistent with the current General Plan land use designation or current Nevada County Transportation Commission (NCTC) Travel Demand Model (Traffic Model) AND generates more traffic than the current General Plan land use designation or Traffic Model.
- Project generates 100 or more new peak hour vehicle trips. Peak hour may be am or pm depending on areas of concern and/or proposed project.
- Project generates 40 or more vehicle trips through an existing Level of Service (LOS) C intersection in *rural regions* or LOS D in *community regions* during the AM or PM peak hour, or
- Project generates 10 or more vehicle trips through an existing LOS D, E or F intersection in *rural regions* or LOS E or F in *community regions*.
- The project does not meet the requirements for Vehicle Miles Traveled (VMT) screening. To meet the requirements for screening, all the following must be true:
    - The project is consistent with the General Plan
    - The project is consistent with the Regional Transportation Plan (RTP)
    - The project meets one of the following criteria:
        - The project is a local-serving retail project of 50,000 square feet or less
        - The project is a residential or work-related land use located in a TAZ with similar land uses, and the project is in a TAZ with total VMT per service population equal to or less than 14.3% below the subarea mean
        - The project is a residential-related land use located in a TAZ with home-based VMT per resident equal to or less than 14.3% below the subarea mean
        - The project is a work-related land use located in a TAZ with home-based work VMT per employee equal to or less than 14.3% below the subarea mean
        - The project is located in the western Nevada County travel forecasting model area and generates less than 630 VMT per day

- The project VMT per service population may exceed a value of 14.3% less than the subarea mean under baseline conditions. "Service population" is defined as the total number of residents, employees, and students. To support the screening process, a screening tool was developed for western Nevada County. To use the tool, navigate to http://gis.fehrandpeers.com/nctcvmt/. Nevada County subareas are defined as follows:
    - Alta Sierra (traffic analysis zones [TAZs] identified as Alta Sierra in the NCTC Travel Demand Model)
    - Lake of the Pines (TAZs identified as Lake of the Pines in the NCTC Travel Demand Model)
    - Lake Wildwood and Penn Valley (TAZs identified as Lake Wildwood and Penn Valley in the NCTC Travel Demand Model)
    - Remainder of unincorporated western Nevada County (area covered by the NCTC Travel Demand Model)
      Remainder of unincorporated eastern Nevada County (area not covered by the NCTC Travel Demand Model)

For purposes of making consistency findings with the General Plan and RTP, verify that implementation of the project would not exceed the expected growth in its associated TAZ of the Traffic Model. County staff conducting this analysis will need to consider whether any of the expected growth has already been assigned to previously approved projects.

A traffic analysis may still be required where projects may significantly increase traffic during other time periods (e.g., daily, weekend, etc.), impacts an already congested or high-collision location, or when specific site access and/or safety issues are of concern.

In the absence of the need for a traffic analysis as detailed above, documentation of the project peak hour trip generation and conformance with the General Plan will be required.

If there is an existing traffic analysis for a project, a new or updated memo or study will be required if the existing analysis is more than two years old and conditions have changed and/or the proposed project has changed.

DETERMINING LEVEL OF TRAFFIC ANALYSIS

To analyze traffic impacts, the project applicant shall submit the following information:

- Project site plan
- Project description identifying:
    - Square footage of proposed buildings by type of use
    - Expected number of residents, employees and students by use, if known
    - Proposed project phasing identifying areas and dates of completion based on square footage by use
    - Expected year of completion of the project
    - Any General Plan modifications

Using this information, the County will determine the type of traffic analysis needed.

Traffic Memorandum - In some instances, a less comprehensive analysis may be requested in the form of a traffic study memorandum. A memorandum is required for projects which: 1) meet the VMT screening criteria; and 2) are determined to have a less than significant impact on the overall transportation system but may have impacts at the immediate site access points and/or a localized impact on nearby intersections. Under certain circumstances, a memorandum may be allowed in lieu of a traffic study when a project meets the criteria, but the impacts and mitigations are known to be minimal. The decision to require a memorandum is at the discretion of the County.

Traffic Study – If traffic analysis is required and the project does not meet the criteria for a Traffic Memorandum, a Traffic Study is required.

TRAFFIC MEMORANDUM SCOPE

The scope of the memorandum varies and is determined on a case-by-case basis but generally will include evaluation of Existing Year Plus Proposed Project traffic at the project access points and adjacent impacted intersections and roadway segments. The memorandum, depending on site specific factors, may include other components as described in these guidelines.

TRAFFIC STUDY SCOPE

Traffic studies shall be prepared and stamped by a Registered Traffic Engineer or a Registered Civil Engineer with demonstrated competence and adequate experience in the field of Traffic Engineering. Following is the outline and content for a typical Traffic Study:

1. Executive Summary. Presents a brief overview of the project, a short discussion of the project's traffic generation potential, the expected impacts of the project, and a summary of measures necessary to mitigate resultant project impacts.

2. Project Setting. Includes:

a. Descriptions of transportation facilities affected by project traffic including existing traffic volumes (include the source and count year of the traffic data). This description should include all major access routes to the site with descriptions of the most likely routes to be utilized.

b. Description of existing and proposed land uses surrounding the proposed project site. If the land uses differ from the General Plan designation for a particular parcel, it needs to be indicated in this section.

c. Exhibit(s) showing the various transportation facilities in the study area with existing peak hour traffic count information.

d. Table showing existing daily (24-hour) volumes along affected routes. Traffic counts are only valid for two (2) years.

e. Peak Hour traffic counts shall be conducted between 7:00am to 9:00 am and 4:00 pm to 6:00 pm on a Tuesday, Wednesday or Thursday during the normal public school period (i.e. September to May). The County will provide copies of existing traffic count information, if available.

f. Discussion of future planned transportation facilities if applicable.

3. Project Description and Location. Includes a detailed development description and specific project location. Exhibits in this section shall include a site plan showing development density, adjacent transportation facilities, on-site parking and circulation, gross square footage, number of rooms/units, phasing and other information as appropriate. Any changes in these descriptions during the permitting and construction processes may require an amendment to the study.

4. Traffic Generation Forecast. Includes trip generation estimates for the project. Typically, these values will be derived from the current edition of Trip Generation, published by the Institute of Transportation Engineers (ITE). Alternative trip calculation methodologies (e.g., locally valid trip generation rates, SANDAG trip generation rates, site specific traffic study rates, etc.) must be approved by the County prior to use.

This section includes a summary table listing each specific project use, the size contemplated, the trip generation rates used (total daily traffic and peak hours), appropriate trip reductions and the resultant total trips generated for the project site. In general, the peak hour trip generation shall be that of a typical weekday and shall coincide with the peak hour of the roadway system (not the peak hour of the generator); however, there may be instances where a unique project use requires an analysis during different time frames.

This section also includes a comparison of the project's trip generation rate compared with typical trip generation rates for the site's existing General Plan land use category. If the proposed project represents only a portion of a larger overall site, such as a phased project, then the study shall discuss the degree to which both the initial phase and the ultimate development impacts the transportation network.

The forecast should include increases in traffic to local residential and commercial developments. Will the project result in increased traffic through a neighborhood? Will the project generate 'cut through' traffic on a particular street?

5. Traffic Distribution and Assignment. Includes:

a. traffic distribution and assignment consistent with current traffic distribution patterns.

b. a description of the utilization of study area transportation facilities by site-generated traffic.

c. an exhibit in which the projected daily link volumes between intersections, as well as peak hour turning movement volumes at intersections, are clearly depicted. This information is to be presented on two exhibits: one presenting daily link volumes between intersections and the second illustrating peak hour turning movement volumes within the study area.

6. Traffic Impact Analysis. Includes evaluation of intersection operation as well as midblock roadway segment operation.

a. Analysis Methodologies - Highway Capacity Manual (HCM) 6th Edition (2016) methodology shall be used. The consultant shall utilize the current *Synchro* software suite when analyzing intersections and roadway segments. LOS outputs, however, will be based on HCM 6th Edition (2016) (and not generated through *Synchro 8*).

b. Study Intersections and Roadway Segments – LOS A, B, C (and D in *Community Regions)* are considered acceptable LOS for County intersections and roadway segments. Where project traffic is distributed, the following intersections and roadway segments must be analyzed if they are:

- immediately adjacent to the project site; or
- currently operating at LOS A, B, and C where project traffic contributes 25 or more peak hour trips; or
- currently operating at LOS D or worse in *Rural Regions* and generates 10 or more peak hour trips; or
- currently operating at LOS E or worse in *Community Regions* and generates 10 or more peak hour trips; or
- are at a high collision location (defined as intersections or roadway segments having five or more reported collisions within the most recent 3-year period).

If the project traffic causes an intersection or roadway segment to worsen from an acceptable LOS to an unacceptable LOS or is distributed to an intersection or roadway segment currently operating at an unacceptable LOS, the project impacts must be mitigated to an acceptable LOS to remain consistent with Nevada County General Plan Circulation Element Policies LU-4.1.1 and 4.1.2.

c. Conditions and Timeframes – In all cases, the analysis of transportation facility operations must be performed and documented for all of the following conditions and timeframes:

- Existing Year
- Existing Plus Approved Projects
- Existing Plus Approved Projects plus Proposed Project (completion year or one for each completed phase for a multi-phase project)
- Cumulative (Year 2030) - including approved but not yet built development project traffic which exceeds the traffic generation assumptions of the General Plan or Travel Demand Model land uses.
- Cumulative Plus Proposed Project (Year 2030) - including approved development project traffic which exceeds the traffic generation assumptions of the General Plan or Travel Demand Model land uses.

The County's Planning Division will provide information pertaining to the latest approved but not yet constructed project list for inclusion in the Existing Plus Approved Project and Cumulative

analysis scenarios. Approved but not yet built development projects within the County which contribute 25 or more peak hour trips are included in said list.

Additional time frames may be required for large multi-phased developments.

d. Queuing - Queue lengths will be analyzed for each lane to provide the distance that vehicles will backup in each direction approaching an intersection. The 95th percentile queue length will be used to account for fluctuations in traffic and represents a condition where 95 percent of the time during the peak period, traffic volumes and related queuing will be at or less than determined by the analysis.

   Ninety-fifth percentile queuing will be checked under the Existing Plus Approved and Cumulative year AM and PM peak-hour conditions. Queuing impacts are considered to be substantial if they 1) exceed the available storage capacity and extend through the adjacent street intersection, 2) extend through right- or left-turn pocket, 3) extend in the through lane blocking a right- or left-turn pocket, or 4) result in insufficient sight distance conditions.

e. Additional Documentation Requirements

   - Include a table in which the forecast LOS for each transportation facility within the defined study area is identified. This summary table shall present LOS for all scenarios.
   - Identify transportation facility improvements within the study area that are planned to be constructed by the County as part of the Local Traffic Mitigation Fee Program (LTMF) and/or Regional Transportation Impact Fee Program (RTMF).
   - The need for new traffic signal control at unsignalized study intersections shall be evaluated based on applicable warrants contained in the latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD) or other approved source.

7. VMT Analysis If the project does not meet the screening criteria, VMT analysis will be required. For projects not screened out due to unique project factors that may create VMT larger than expected for projects with similar land use, these factors should be addressed and included in the VMT impact analysis.

A project's or plan's VMT impact may be considered less than significant if:

- The project or plan total weekday VMT per service population is equal to or less than 14.3% below the subarea mean under baseline conditions, or the project reduces the total VMT per service population for the subarea

  AND

- The project or plan is consistent with General Plan and the Nevada County Regional Transportation Plan.

For purposes of making consistency findings with the General Plan and RTP, verify that implementation of the project would not exceed the expected growth in its associated TAZ of the Traffic Model. County

staff conducting this analysis will need to consider whether any of the expected growth has already been assigned to previously approved projects.

The project analysis baseline year is typically when the Notice of Preparation is filed.

To analyze VMT, use the travel demand forecasting model covering the project area, if available.

- Analyze baseline year conditions by interpolating between the model base and future years. This interpolation acknowledges the growth and VMT adopted by the General Plan. Alternatively, in subareas with little or no growth use of the model base year as the project analysis baseline year may be acceptable but should be justified.
- Analyze project-level VMT effects of the project by adding project land use to the base year model to create a base year plus project scenario.
- Analyze cumulative VMT effects by modifying the allocation of future year land use growth based on the project's land use supply changes.
- Estimate VMT per service population to one decimal place.
- Utilize model post-processing tools that account for trip distances outside of the model area, based on trip distances from the California State Travel Demand Model (CSTDM) or California Household Travel Survey (CHTS).
- Ensure intra-zonal trip distances are included in the analysis.
- Utilize conversion factors to translate square feet of development to workers and households to residents. Conversion factors appropriate to the NCTC travel demand model are provided in Appendix A.

For projects in areas not covered by the NCTC Travel Demand Model, other analysis methods for VMT are required.

- Methodology may involve spreadsheet estimations or other VMT tools, selected as appropriate for the project.
- ITE trip rates, CHTS trip rates and trip lengths, and CSTDM trip rates and trip lengths are all possible sources of data for such an analysis.
- Calculate the threshold total weekday VMT per service population for the subarea in which the project is located.
- Threshold recommendation must meet the substantial evidence criterion of CEQA Guidelines Section 15064.7, thus considering data, facts, research, and analysis.
- Determine if the project meets the threshold.

8. Project Site Access. Includes discussion of number of driveways serving a parcel or site, right turn deceleration lane or right turn curb flares for driveways, left turn deceleration lane for driveways, storage requirements for turn lanes, minimum offset for opposing driveways, restricted turning movements for driveways, sight distance, existing and proposed transit stop locations, and probable delivery/service truck routes to the site. Each site access point shall be discussed separately. If the proposed site access does not

satisfy the County's Design Standards, identify what modifications would be necessary to meet County standards or provide justification for use of a non-standard driveway configuration.

9. On-Site Circulation. Includes a discussion of on-site circulation complete with descriptions of the proposed access points, turn prohibitions, number of lanes proposed, on-site transit stop locations, driveway throat depth, parking supply/demand/parking aisle circulation, on-site pedestrian circulation, bicycle parking, on/off-site delivery truck circulation and any other applicable circulation issues.

10. Safety. Considers circulation of vehicles, bicycles, pedestrians, transit, and any other affected modes of transportation. The safety discussion should address existing conditions, the project's potential safety impacts, and opportunities available to improve or mitigate these impacts. May include safety impacts to nearby intersections and roadways, trails and sidewalks, bus stops, etc. A discussion on fire safety and emergency access should accompany this section. The safety component of the study should also discuss project compliance with the Americans with Disabilities (ADA) Act. May also include an analysis of residential neighborhoods impacts, discussion on potential noise and air quality impacts, etc.

11. **Alternative Transportation.** Include a discussion on site accessibility via bicycle, pedestrian, transit, and other modes of transportation. The County's various master plans should be referred to in identifying existing and future bicycle facilities, trail and other pedestrian facilities, etc. A discussion on potential transit service (if applicable) should also be discussed.

12. Construction Period Impacts. Includes a discussion of any unusual circumstances anticipated during construction. Proposed transportation facility closures, construction signage, haul routes, impacts to public facilities, safety features, and detours shall be included.

13. Conclusions / Mitigation Measures. Includes all measures required to mitigate intersection, roadway segment, or other transportation facility significant impacts. A table presenting LOS for conditions with and without mitigation shall be included. Appropriate text along with diagrams must be provided detailing each mitigation measure and method(s) of implementation. These diagrams shall include, as a minimum, the existing intersection geometrics, striping, right-of way and building locations (as applicable) and the proposed modifications.

For each significant impact, one of the following must be proposed by the traffic engineer:

a. **Mitigation to a level of insignificance** - Proposed mitigation identifies and evaluates any proposed mitigation and documents how the impact will be mitigated to a level of insignificance. The following describes acceptable determinations of mitigation:

   - Proposed Mitigation identifies and evaluates any proposed mitigation and documents how the impact will be mitigated to a level of insignificance.

   - If an improvement project is identified and programmed as a priority project as part of the LTMF and/or RTMF program, is fully funded with a funding source, and has a schedule for completion, then payment of the LTMF and/or RTMF program fees is sufficient mitigation.

   - If an intersection improvement project is included in the LTMF and/or RTMF program but is not fully funded and not a priority project, the applicant will be 100% responsible for funding

the improvements. The applicant may be eligible for reimbursement, minus their fair share of the costs, which will require the applicant to enter into a reimbursement agreement with the County and/or the Nevada County Transportation Commission (NCTC).

- If an intersection improvement is not identified in the LTMF and/or RTMF program, then the applicant will be 100% responsible for constructing and funding the necessary improvements. At the option of the applicant and with approval of the County, the applicant may create, at their own expense, an Assessment District, Road Association or other funding mechanism to seek reimbursement for the improvements minus their fair share.

- If VMT analysis indicates that the VMT impact of the project is significant, mitigation measures may be considered and analyzed to determine if they would reduce project/plan total VMT per service population below the threshold. Analysis must meet the substantial evidence criterion of CEQA Guidelines Section 15064.7, thus considering data, facts, research, and analysis.

b. Mitigation not identified and/or feasible. May result in the preparation of an Environmental Impact Report (EIR) in accordance with the provisions of the California Environmental Quality Act (CEQA) which may determine that a Statement of Overriding Considerations is applicable.

13. Appendices - Detailed appendix material is to be supplied as part of the report. If the main report is too large to include an appendix, such material shall be provided under a separate and identifiable cover. Typical material includes traffic counts, HCM analysis worksheets, VMT reports and summaries, level of service reports/worksheets, micro-simulation input and output reports, signal timing information, fully completed signal warrants, collision diagrams at high collision locations, sketches of proposed mitigation measures, and other information necessary for the City's review of the report.