SECTION 4

TRAFFIC STUDIES (TS)

4-1 GENERAL - The City has established the following guidelines to aid in the determination of the need for, and the preparation of traffic studies. These guidelines are intended to ensure consistency of analyses and adequacy of information to aid City staff and decision makers in the consideration of project approval with regard to impacts to the City's transportation system.

Development projects that have the potential to substantially affect the City of Grass Valley's transportation system may be required to prepare a traffic study. The City will consider the requirement for a traffic study on a case-by-case basis as development projects are brought forward for consideration.

4-2 PURPOSE OF TRAFFIC STUDIES - Traffic studies are an important tool for the City in the overall development planning process for all types of projects (residential, commercial, industrial, institutional, etc.). These studies provide the necessary information to allow an assessment of the potential traffic impacts associated with proposed projects as they relate to transportation policies established by the City. Traffic studies are also used to identify appropriate mitigation and/or recommendations where practicable to offset project specific impacts, specifically as it relates to the California Environmental Quality Act.

4-3 REQUIREMENT FOR TRAFFIC STUDY - A traffic study may be required for any proposed development project for which at least one of the following criterion is met:

A. Project will substantially change the off-site transportation system or connections to it or may create a hazard to public safety as identified by the City or the California Department of Transportation (Caltrans).

B. Project is inconsistent with the current General Plan land use, current NCTC 2027 traffic model land use, or current City-wide traffic model land use and project generates more traffic than the current General Plan/modeled land uses.

C. Project generates 63[1] or more new PM peak hour vehicle trip ends. The City may evaluate and apply other non-PM peak periods, such as the noon hour, based on the location of the site or a unique traffic demand of the development.

If a traffic study has been previously prepared for a project, a new study or updated study may be required by the City if the traffic study is more than two years old and/or the proposed project changed and the PM peak hour trip generation increases by more than 10%.

4-4 SCOPING – In order to determine if a traffic study is required, the type of traffic study needed, and to facilitate the traffic study process, the project applicant shall first prepare and submit a completed "Scoping Agreement for Traffic Study" form (the "Scoping Agreement") to the Engineering Division. This form will be used to determine and document if a traffic study is required and, if so, the specific nature of the study. The Engineering Division will complete the City portion of the form. Certain sections of the City portion of the form may not be able to be completed until a traffic consultant is selected by the City. The Scoping Agreement provides for documentation and agreement of key points including but not limited to:

A. Approximation of project trip generation, distribution and assignment.

[1] Based on the lowest PM Peak Hour Trip count of projects requiring mitigation as detailed in a Traffic Study Comparison of actual traffic studies of projects in the City of Grass Valley.

B. Determination of potentially affected transportation facilities.

C. Identification of approved projects for background traffic, traffic growth assumptions, and integration with the City's traffic model.

D. Determination of the type of traffic study, if required.

E. Proposed special assumptions and/or quantifiable improvements or changes to the circulation system which are not consistent with the City's *General Plan Circulation Element.*

For projects within one (1) mile of a state highway, or any project that may create a significant impact on a state highway, coordination with Caltrans may be necessary. For projects adjacent to the City/Nevada County limits and with anticipated project trip distribution into the County, coordination with Nevada County may be necessary. A summary of the outcome of these coordination efforts is required to be provided to the City.

If a traffic study is required, the City will obtain three quotes from those traffic engineering consultants under Professional Service Agreements with the City. The City and applicant will select a traffic consultant. An agreement and deposit will then be required between the applicant and City prior to preparation of a traffic study. These steps generally take four weeks to complete. The applicant will be responsible for the cost of the preparation and review by City staff of the traffic study.

4-5 TRAFFIC STUDY CONTENT– Based on the Scoping Agreement, the City will accept one of the following types of traffic studies. All 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.

A. Traffic Impact Assessment (TIA) - This type of traffic study is required for development projects which are determined (through the Scoping Agreement) to not have a significant impact on the overall transportation system, rather it may have impacts at the immediate site access points and/or a localized impact on an adjacent intersection. The scope of the TIA 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 TIA, depending on site specific factors, may include other components as described in this section.

B. Traffic Impact Study (TIS) - This type of traffic study is required for development projects which are determined (through the Scoping Agreement) to have a significant impact on the transportation system. Generally, studies of this nature are required for development projects that are not consistent with current planning documents or projects that generate a high number of PM Peak Hour Trips. The following is the recommended outline and content for a typical TIS:

1. **Executive Summary -** Presents factual and concise pertinent information relative to the traffic issues including 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. **Introduction –** Includes a general overview of the proposed project site and study area boundaries, existing and proposed site uses, and existing and proposed transportation facilities located within the study area. Also includes a regional map showing the project vicinity and a site layout map.

3. **Project Setting –** Includes: 1) a generalized geometric description of transportation (vehicular, bicycle, pedestrian and transit) facilities anticipated to be effected by project traffic including existing traffic volumes that use the vehicular facilities (include the source and count year of the traffic data). Consistent with the Scoping Agreement project trip assignment, these facilities include all major access routes to the site with descriptions of the most likely routes to be utilized; 2) a 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; 3) an exhibit showing the various transportation facilities in the study area with existing PM and/or other peak hour traffic count information; 4) a table showing daily (24-hour) volumes, if appropriate; and 5) a discussion of planned (by the City or other agency) transportation facilities.

   Traffic counts are only valid for two (2) years. When required to be collected, all traffic counts shall be conducted between 4:00 p.m. to 6:00 p.m. on a Tuesday, Wednesday or Thursday during the normal public school period (i.e. September to May) unless otherwise defined in the Scoping Agreement. The City will provide copies of current traffic count information, if available. Based on the location of the site or a unique traffic demand, the City may require evaluation of other peak demand periods of the day (i.e. AM peak period, mid-day peak period, or weekends). Please note that Caltrans and/or Nevada County may require additional traffic analyses if the projected traffic impacts a State and/or County facility.

4. **Project Description and Location -** Expands on information presented in the Introduction giving a detailed development description and specific project location. Exhibits in this section shall include at a minimum a clear illustration of the project (i.e. site plan) in which density, adjacent transportation facilities, on-site parking and circulation, gross square footage, number of rooms/units, phasing and other descriptions as appropriate are clearly depicted. Any changes in these descriptors during the permitting and construction processes may require an amendment to the study.

5. **Traffic Generation Forecast -** Includes trip generation estimates for the project based on industry standard trip generation values or other methods approved by the Engineering Division such as local trip generation rates. Typically, these values will be derived from the current edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE). Adjustments to these values may be appropriate assuming the applicant proposes acceptable specific and permanent measures that will reduce the traffic generation potential of the project. The engineer must submit the proper documentation to sufficiently support the proposed reduction. Locally valid trip generation rates may also be applied for unique project types.

   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, such as a weekend.

   Includes a discussion on how the project's trip generation rate compares 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.

6. **Traffic Distribution and Assignment –** Includes: 1) traffic distribution and assignment consistent with current traffic distribution patterns; 2) a description of the utilization of study area transportation facilities by site-generated traffic; 3) an exhibit in which the projected daily link volumes between intersections, as well as peak hour turning movement volumes at intersections, are clearly depicted. All of this information is usually presented on two exhibits: one presenting daily link volumes between intersections and the second illustrating peak hour turning movement volumes within the study area.

7. **Traffic Impact Analysis -** Unless otherwise noted in the Scoping Agreement, includes evaluation of intersection operation as well as midblock roadway segment operation.

   a. **Analysis Methodologies -**
      i. Highway Capacity Manual (HCM) methodology must be used. Default HCM values must be used unless noted otherwise below.

      ii. Current signal timing schedules for signalized intersections must be used in the analysis.

      iii. For roundabouts, micro simulation (SimTraffic for single lane roundabouts and Vissim for multi-lane roundabouts) or SIDRA software must be used.

      iv. For the Brunswick Road Corridor (including Brunswick/E. Main, Brunswick/SR20/49 on and off ramps, and Brunswick/Sutton intersections) and the McKnight Way corridor (McKnight and SR49 on and off ramp intersections), Synchro/SimTraffic Version 7 software (or approved equal) micro-simulation software using *HCM 2000* methodology must be used to evaluate the corridor as a whole due to the coordinated operation of the closely spaced signalized intersections.

      v. Intersections with non-standard traffic control (i.e. McKnight and South Auburn) should be analyzed using the engineer's best judgment (such as micro-simulation) with review and approval of methodology by the Engineering Division.

      vi. Standard lane utilization may not occur at all intersections. This operational aspect is particularly true at SR 20/49 interchanges. The assumed lane utilizations should reflect actual conditions, which may require counts for each lane.

   b. **Study Intersections and Roadway Segments –** LOS A, B, C, and D are considered acceptable LOS's for City intersections and roadway segments except where LOS E is considered acceptable for the following downtown intersections: Mill/Neal, W. Main/Mill, W. Main/Church, W. Main/School, Bank/S. Auburn, SR 20/49 SB Ramp/Bennett. Where project traffic is distributed, the following intersections and roadway segments must be analyzed if they: 1) are currently operating at LOS A, B, and C (D for downtown intersections identified above) where project traffic contributes 10 or more peak hour trips; 2) are currently operating at LOS D (E for downtown intersections identified above) or worse; and/or 3) are high accident locations (defined as intersections or roadway segments having five or more reported accidents within the most recent 3 year period).

      If the project traffic causes an intersection or roadway segment to worsen from an acceptable LOS to LOS E or worse or is distributed to an intersection or roadway segment currently operating at an unacceptable LOS, the project is determined to cause a significant impact which must be mitigated. It is acceptable to mitigate an intersection or roadway segment

from an unacceptable LOS to an acceptable LOS. In the event of a significant impact, cumulative year analyses are required.

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

i. Existing Year

ii. Existing plus Proposed Project (completion year or one for each completed phase for a multi-phase project)

In those cases where the results of the existing year analyses determine that the project's traffic causes a significant impact, the following cumulative year analyses must be performed:

iii. Cumulative (Year 2030) - including approved but not yet built development project traffic which exceeds the traffic generation assumptions of the General Plan/ Grass Valley Travel Demand Model land uses.

iv. Cumulative plus Proposed Project (Year 2030) - including approved development project traffic which exceeds the traffic generation assumptions of the General Plan/ Grass Valley Travel Demand Model land uses.

The City's Engineering Division will provide information pertaining to the latest approved but not yet constructed project list for inclusion in the cumulative analysis scenarios as part of the Scoping Agreement. Approved but not yet built development projects within the City 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. Additional Documentation Requirements-

i. 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.

ii. Identify transportation facility improvements within the study area that are planned to be constructed by the City as part of the Grass Valley Transportation Impact Fee Program or the Regional Transportation Mitigation Fee program.

iii. 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. If a new traffic signal is being proposed and the signal installation would be located close to an adjacent signalized intersection, the study shall include a micro-simulation analysis. The roadway segment to be analyzed for signal progression must include all existing and planned signalized intersections. Those intersections that would reduce the optimum corridor bandwidth if a traffic signal were installed may be required to remain unsignalized and have turning movements restricted by access design or median islands.

8. Project Site Access – Includes discussion and/or depiction 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 City's Design Standards, identify what modifications would be necessary to meet City 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. **Construction Period Impacts -** Includes a discussion of any unusual circumstances anticipated during construction. Proposed transportation facility closures, construction signage, safety features, and detours shall be included. At no time will any street capacity be reduced or closed without written permission from the Engineering Division.

11. **Conclusions / Mitigation Measures -** Includes all measures required to mitigate intersection, roadway segment, or other transportation facility significant impacts. A table presenting resultant levels of service for conditions with and without mitigation shall be included. Appropriate text along with sketches (either in this section, the appendix, or accompanying the report) must be provided detailing each mitigation measure assumed in the study and method(s) of implementation. These sketches shall include, as a minimum, the existing intersection geometrics, striping, right-of-way and building locations (as applicable) and the proposed modifications.

    Traffic improvements necessary as a result of project related impacts could become conditions of approval for the subject development. Improvement of the transportation facilities adjacent to the project, to at least half-width configuration, could also be a condition of approval. Additional off-site traffic related improvements may be required on a project by project basis.

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

    a. Mitigation to a level of insignificance. The following describes acceptable determinations of mitigation:

    i. Proposed Mitigation Identifies and evaluates any proposed mitigation and documents how the impact will be mitigated to a level of insignificance. Signal phasing/timing modifications may be sufficient mitigation measures in some cases. The following mitigation methods may be applicable:

    1. If an intersection improvement project is identified and programmed as a priority project as part of the Grass Valley Transportation Impact Fee (GVTIF) program or the Regional Transportation Mitigation Fee (RTMF) program, is fully funded with a secured funding source, and has a schedule for completion, then payment of the GVTIF program and/or RTMF program fees is sufficient mitigation.

    2. If an intersection improvement project is included in the GVTIF program or the 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 City and/or the Nevada

County Transportation Commission (NCTC).

3. If an intersection improvement is not identified in the GVTIF program 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 City, the applicant may create, at their own expense, a Benefit Assessment District and/or Area of Benefit and Reimbursement Agreement or other funding mechanism to seek reimbursement for the improvements minus their fair share.

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 an overriding consideration is applicable.

12. 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, level of service reports/worksheets, micro-simulation input and output reports, signal timing information, fully completed signal warrants, accident diagrams at high accident locations, sketches of proposed mitigation measures, and other information necessary for the City's review of the report.

4-6 TRAFFIC STUDY UPDATE - All previous traffic studies that are more than two (2) years old and where the improvements have not been constructed, or the project has not been approved, will generally be required to be updated unless the Engineering Division determines that conditions have not changed significantly.

4-7 SUBMITTAL PROCEDURE – All traffic studies for projects in the City of Grass Valley must be reviewed and accepted by the Engineering Division. The City requires that all traffic studies for projects in the City be prepared by one of the Traffic Engineering consultants under contract with the City. The following procedure for submittal shall be followed:

A. Selection of Consultant – The City will request three quotes for preparation of a study, based on the Scoping Agreement, from an approved list of traffic consultants under contract with the City. The City in coordination with the applicant will select a consultant. The consultant will be directed by the City to proceed after the applicant has entered into a reimbursement agreement with the City and posted funds to pay for the cost of the study and staff's review time of the study.

B. Prior to Preparation of a Draft Traffic Study – The consultant will complete and/or revise the City portion of the Scoping Agreement and submit it to the Engineering Division for review and acceptance. Once the form is returned with the City's signature accepting the agreement, the draft traffic study preparation may begin.

C. Submit Draft Traffic Study – Submit two (2) 8-1/2" x 11" paper copies of the draft traffic study and one electronic copy of the study in PDF format. Comments will be electronically returned to the consultant.

D. Submit Final Traffic Study – Submit four (4) 8-1/2" x 11" paper copies of the draft traffic study and one electronic copy of the study in PDF format. If all previous comments have been addressed and the traffic study meets all City requirements as outlined, one paper copy of the traffic study with

an acceptance stamp will be sent to: the consultant; the applicant; the Planning Division; and, one will be maintained by the Engineering Division.