

Chapter 6 - Traffic Impact Study Criteria

6.1 Traffic Impact Studies

A Traffic Impact Study (TIS) may be required by the City to adequately assess the impacts of a development proposal on the existing or planned roadway network. A TIS shall be required for proposed developments with peak hour trip generation volumes anticipated to exceed 50 vehicles during any peak hour or when considered necessary or desirable by the City. The Applicant has the primary responsibility for assessing the traffic impacts associated with a proposed development, with the City serving in a review and approval capacity.

6.1.1 Standard TIS

The following scenarios or submittals shall require a TIS and thorough documentation of the study assumptions, process, and results:

- 1) **Rezoning.** If a rezoning is requested for a site, inclusive of major amendments to a planned development and use by special review Applications, a Standard TIS may be required. In the case of a rezoning in which the currently proposed zoning is anticipated to generate fewer trips than the previously proposed zoning, a letter summarizing the trip generation of the Application, including a comparison to the trip generation of the previously proposed zoning, may be submitted in lieu of a Standard TIS (refer to the Traffic Impact Study Compliance Letter subsection).
- 2) **Preliminary Plan or Final Plat.**
- 3) **State Highway Access.** A Colorado Department of Transportation (CDOT) access Permit is required for a new access from a new development, an additional access to an existing development, or a change in use for an existing access that abuts a state highway. CDOT will issue this access Permit even if the location is within Castle Pines city limits. Prior to submitting a request for an access Permit to CDOT, the TIS must be approved by the City.
- 4) **Land Use Intensity Increase.** The Applicant will be required to conduct a new TIS and submit documentation if, after submitting the original TIS for any of the previously noted scenarios, the land use intensity is increased by more than 20%, or the land use changes such that trip generation is increased by more than 20%.
- 5) **Delayed Implementation.** If development does not progress as anticipated, the Applicant may be required to update an existing TIS if the approved document is more than 2 years old, and the analysis years are no longer valid. This requirement will be waived if the City determines the conditions have not changed significantly.

A TIS conducted and documented to address one of these scenarios or submittals is referred to as a Standard TIS.

6.1.2 Scoping the TIS

The Applicant is strongly suggested to discuss projects with City staff prior to starting the TIS. The Applicant may request a meeting or phone conversation. Topics for discussion may include project phasing, trip generation, directional distribution of traffic, trip assignment, study area definition, intersections requiring capacity or level of service (LOS) analysis, analysis time periods, traffic safety analysis, truck traffic limitations, signal timing policies, and methods for projecting interim and buildout volumes as applicable.

Specific requirements will vary depending on the site location and development proposal. The TIS scope shall be commensurate with the scale and scope of probable operational and safety impacts to the general roadway network. A general guideline related to determining the extent of the study area is to extend the analysis at least as far as those areas where newly generated site traffic represents 5% or more of a roadway's peak hour capacity. Where site-generated traffic will be less than 5% of the roadway capacity, the study area limits would at minimum include all site accesses, adjacent roadways, and adjacent major intersections. At maximum, limits would also include all roadways, and Collector/Collector and Collector/Arterial intersections, extending from the proposed development to and including the intersection with the nearest state or federal highway. The study area or improvement commitments may extend into other jurisdictions or incorporated areas.

The TIS and its documentation will be the responsibility of the Applicant and must be prepared, stamped, and sealed by a Professional Engineer (PE) licensed in the State of Colorado with adequate experience in transportation engineering. Upon submission of a draft TIS, the City will review the study data sources, methods, and findings. Comments will be provided in a written form. The Applicant and PE will then have an opportunity to incorporate necessary revisions prior to submitting final documentation.

6.2 TIS Process and Document Format

To provide consistency and to facilitate staff review of a TIS document, the following format must be adhered to by the PE in the preparation of study documentation.

6.2.1 Executive Summary

The executive summary should briefly summarize the purpose of the TIS, its recommendations, and other information necessary for the City Development Review Engineer to understand the purpose of the TIS. If the subject study area was included in a previous TIS, an explanation must be included regarding how the subject area relates to the area previously analyzed. If necessary, explain any unusual circumstances that necessitate the TIS.

6.2.2 Introduction

Include the following items in the introduction section of the TIS document.

- 1) **Development Site and Study Area Boundaries.** Include a brief description of the land parcel size, existing uses, general terrain features, and location within the jurisdiction.
- 2) **Study Area.** The exact limits of the study area shall be based on sound engineering judgment and an understanding of existing traffic conditions surrounding the site. In all instances, however, the Applicant, PE, and City must mutually agree upon the study area limits. These limits will usually result from initial discussions with staff.
- 3) **Vicinity Map.** Include a Vicinity Map that shows the site and study area boundaries in relation to the surrounding transportation system. The map shall include proposed site access locations to the adjacent roadway network within the transportation system.
- 4) **Proposed Development Description.** Identify the proposed land use types(s) and size(s) in terms specific enough to align with land use codes contained in trip generation methodology. If the development is to be built in a phased manner, the types and sizes of the land use to be implemented in each phase, as well as the projected completion date of each phase, shall be identified. If specific land uses are not known, assume the most intense use (in terms of trip generation) allowed by current or proposed zoning. Include a figure that depicts the site plan, land uses within the site, and site access points to the adjacent roadway network.

- 5) TIS Scope. Briefly describe the agreed-upon scope of the TIS in terms of the study intersections, driveways, roadway segments, analysis time periods, and future scenarios to be analyzed.
- 6) Analysis Methodology. Explain the methodology followed to estimate the traffic operations within the study area. Assumptions, adjustment factors, data, and references must be described where applicable throughout the document to assist the City Development Review Engineer with understanding the methodology and process followed by the PE to conduct the TIS.

6.2.3 Existing Conditions

The current traffic conditions within the study area must be identified. The existing year will be determined during the initial meeting with the City but will typically be the year in which traffic volumes are collected. Include the following items in the TIS analysis and documentation of existing conditions.

- 1) Roadway Network. Describe existing roadways and intersections, including roadway classification, speed limits, geometrics, traffic control, and other pertinent features within the study area. Provide a figure that depicts the roadways and intersections, as well as surrounding land use and zoning.
- 2) Traffic Volumes. Collect current traffic volumes at identified intersections (turning movements) and roadway links (24-hour volume counts) for the study time periods. At a minimum, weekday morning (a.m.) and evening (p.m.) peak period turning movement counts will be required. Turning movement volumes for other periods may be required; these periods will be determined at the initial meeting. Traffic volumes over 2 years old are not acceptable. Include a graphic showing these daily and peak period volumes. All raw traffic count data (including average daily traffic volumes and peak hour turning movements) shall be included in appendices to the TIS documentation.
- 3) Levels of Service (LOS). The current traffic operations within the study area shall be described in terms of LOS during the analysis time periods, using the operational methodologies as detailed in the most recent version of the Highway Capacity Manual (HCM). The City will provide existing traffic signal timing values. For signalized intersections, LOS shall be reported for each individual movement and for the intersection overall in each analysis time period. For unsignalized intersections, LOS shall be reported for each applicable individual movement in each analysis time period. The extent of vehicle queuing and its potential impact to adjacent intersections shall be evaluated using a Poisson's distribution methodology (see Queuing Analysis section) or other method approved by the City.

Include a narrative explanation of the LOS results and the impact to area traffic operations. Existing traffic volumes and LOS shall be shown in graphical format for each analysis time period. For signalized intersections, the graphic should show overall intersection LOS. For unsignalized intersections, the graphic should show LOS for each applicable movement. All LOS output reports shall be included in an appendix to the TIS document. Electronic data files must accompany the TIS document submittal.

- 4) Traffic Safety Analysis. The City will indicate during the initial meeting whether a traffic safety analysis will be required for inclusion in the TIS. The analysis scope will be determined during the initial meeting, but the minimum requirement will be an analysis of traffic crash data for roadway corridors affected by the proposed development to identify historical crash issues and estimate how turning movements and conflict points introduced by new site accesses may impact crash potential. The safety analysis period will normally be the most recent 3 years.

6.2.4 Future Background Conditions

Background traffic volumes for intersections and roadways within the study area must be determined for the opening year of the proposed development (short term) and for the 20-year or area buildout planning horizon (long term) without influence of the proposed site, as determined by the City. Area buildout will typically coincide with the year of the currently approved regional travel demand model. These volumes

shall be used to project background traffic operating conditions. For phased developments, analysis of interim horizons coincident with completion of additional phases may be required. Include the following items in the TIS analysis and documentation of background conditions:

- 1) **Approved Developments.** Projected traffic volumes for platted/approved but unbuilt developments within the study area, or having impact on the study area, shall be added to the projected volumes for the appropriate planning horizon. These volumes shall be based on the expected buildout proportion of the approved plat(s) coincident with the subject planning horizon. Typically, this will primarily affect the background traffic at the time of the opening of the proposed development; however, traffic generated by some larger approved projects may not impact the area until after opening year of the subject development. This projected, post-opening year traffic must be added into the 20-year or area buildout planning horizon.
- 2) **General Growth.** In addition to approved developments, regional traffic growth will affect background traffic volumes for opening, interim, and horizon analysis scenarios. Future traffic growth shall be developed through means determined appropriate by the City, such as the City of Castle Pines Transportation Master Plan, growth rate methodology, and regional travel demand model estimates. The City will determine whether proposed general traffic growth rates are acceptable.
- 3) **Currently Planned Roadway Improvements.** Roadway improvements that would impact traffic conditions within the study area and that are currently planned and funded shall be included in the analysis of future background conditions, as appropriate. Explain the nature of the improvement project, its geographical limits, implementation schedule, funding source and responsible agency/entity.
- 4) **Level of Service.** The background traffic LOS within the study area, without influence of the proposed site, shall be assessed in each analysis time period for each of the identified study years. The LOS shall be analyzed using the operational methodologies as detailed in the most recent version of the HCM. Signalized intersection analysis must use a cycle length consistent with current City signal timing policies. For signalized intersections, LOS shall be reported for each individual movement and for the intersection overall in each analysis time period. For unsignalized intersections, LOS shall be reported for each applicable individual movement in each analysis time period. The extent of vehicle queuing and its potential impact to adjacent intersections shall be evaluated using a Poisson's distribution methodology (see Queuing Analysis section) or other method approved by the City.

Include a narrative explanation of the LOS results. Background traffic volumes and LOS shall be shown in graphical format for each analysis time period. For signalized intersections, the graphic should show overall intersection LOS. For unsignalized intersections, the graphic should show LOS for each applicable movement. All LOS output reports shall be included in an appendix to the TIS document. Electronic data files must accompany the TIS document submittal.

6.2.5 Site Traffic/Trip Projections

This section shall include a summary table listing type, size, the Institute of Transportation Engineers (ITE) Trip Generation – Land Use Code for each land use in the development, trip generation rates, and the resultant total trips for each analysis time period. Trip generation rates from the most current ITE Trip Generation manual shall be used. If an ITE Land Use Code for the proposed land use is unavailable, trip generation from similar land uses, either from other sources, jurisdictions, or field studies, may be used with City approval. If the proposed development will serve an atypically high proportion of heavy vehicles, passenger car equivalents shall be determined and used to estimate trip generation. For phased developments, provide trip generation for each phase individually and for the whole development at buildout.

Site Trip Reductions. Use of the following types of trip reduction factors may be considered with City approval:

- 1) Pass-by factors. As published in the current ITE Trip Generation Manual, pass-by factors can be used to reduce the projected additional total daily traffic to roadways adjacent to a proposed development. These factors shall not be applied directly to reduce trip generation and turning movement volumes at driveways serving the proposed development.
- 2) Internal capture. Trip reductions may be used to reduce the peak period and daily trip generation estimates for a mixed-use development. Assumptions must be documented.
- 3) Modal split. Trips may be reduced when appropriate, such as when the proposed development is located in a transit-oriented development or within one-quarter mile of a major transit corridor. Assumptions must be documented.

Site Trip Distribution. The estimates of percentage distribution of trips from the proposed development to destinations in the region must be clearly stated in this section, using the north, south, east, and west compass points. Trip distribution should be based on actual traffic data where possible. Market studies and information concerning origin of trip attractions to the proposed development may be used to support these assumptions where available. Likewise, distributions presented in TIS documents recently approved by the City may be a source for assumptions. The percentage of site traffic on each roadway must be included in tabular or graphical format to support the textual discussion of the trip distribution assumptions.

Traffic Assignment. The allocation of site-generated traffic along the area's roadway network and through the site access points must be presented in this section. The technical analysis steps, basic methods, and assumptions used in this work shall be clearly documented and follow the assumptions agreed to by the City. The assumed trip distribution and assignment must represent the most logically traveled routes for drivers accessing the proposed development. These routes can be determined by observation of travel patterns to existing land uses in the study area. A graphic showing the site traffic assignment on the surrounding roadway network must be included for each analysis time period.

6.2.6 Projected Site Traffic Impacts

Traffic impacts of the proposed development shall be analyzed for all time periods in the anticipated opening year, interim project phases, and the identified planning horizon. Include the following items in the TIS analysis and documentation of total conditions for short-term (site opening), interim phases, and long-term horizons. LOS values shall be tabulated in a single table for all study intersections, analyzed time periods, and analysis scenarios. All LOS output reports shall be included in the appendices, and electronic data files must accompany the TIS submittals.

6.2.6.1 Site Opening Year for Single-Phase Developments

- 1) Total Traffic. The total projected traffic volumes at the day of development completion shall be determined by adding the proposed site-generated traffic to the short-term background traffic.
- 2) Level of Service. The total traffic LOS within the study area at development completion shall be assessed for each analysis time period. The LOS shall be analyzed using the operational methodologies as detailed in the most recent version of the HCM. Signalized intersection analysis must use a cycle length consistent with current City signal timing policies. For signalized intersections, LOS shall be reported for each individual movement and for the intersection overall in each analysis time period. For unsignalized intersections, LOS shall be reported for each applicable individual movement in each analysis time period. The extent of vehicle queuing and its potential impact to

adjacent intersections shall be evaluated using a Poisson's distribution methodology (see Queuing Analysis section) or other method approved by the City.

For signalized intersections and proposed roadway segments, LOS D for each movement and for the intersection overall will be the design objective at development opening. Under no circumstances shall the development cause a drop below LOS D at signalized intersections for individual movements and overall for any analysis scenario. Refer to the most recent version of the HCM for the average vehicular delays associated with each LOS letter designation.

Include a narrative explanation of the LOS results and the impact to area traffic operations. Opening-year traffic volumes and LOS shall be shown in graphical format for each analysis time period. For signalized intersections, the graphic should show overall intersection LOS. For unsignalized intersections, the graphic should show LOS for each applicable movement. All LOS output reports shall be included in an appendix to the TIS document. Electronic data files must accompany the TIS document submittal.

- 3) **Mitigation.** At study area intersections with projected LOS E or worse overall or for individual movements, mitigation measures shall be identified to improve intersection operations to an acceptable level. Mitigation measures shall also be identified for locations where LOS may be acceptable, but the analysis projects queuing issues with adjacent intersections. This section shall describe and present the results of the additional LOS analysis iterations conducted to identify the appropriate mitigation measures. If individual movements at unsignalized intersections are projected to operate below LOS D, include a discussion about possible mitigation measures or reasonable alternate routes.

The graphical presentation of LOS should include the original and mitigated overall LOS for signalized intersections and by applicable movement for unsignalized intersections. This information can be added to the traffic volume and LOS graphic.

- 4) **Sight-Distance Analysis.** Include an analysis of available entering sight distance at all proposed site access points (per Chapter 7 of these Roadway Standards). This analysis shall include an assessment of the clear zone and horizontal and vertical sight distances. Future accesses identified for an adjacent development shall also be included as necessary if they are proximal to the subject site access.
- 5) **Traffic Safety.** If a traffic safety analysis was completed as part of the existing conditions identification, include a discussion of how the proposed site access points and trips generated by the project may impact or alter documented safety issues and operations at the site access points and study area intersections. Discuss potential safety strategies that are proven effective to address the identified issue(s).

6.2.6.2 Site Opening Years for Interim Phases

- 1) **Total Traffic.** The total projected traffic volumes at the day of development completion for each of multiple phases shall be determined by adding the proposed site-generated traffic to the applicable background traffic.
- 2) **Level of Service.** The total traffic LOS within the study area at each phase of completion shall be assessed for each analysis time period. The LOS shall be analyzed using the operational methodologies as detailed in the most recent version of the HCM. Signalized intersection analysis must use a cycle length consistent with current City signal timing policies. For signalized intersections, LOS shall be reported for each individual movement and for the intersection overall in each analysis time period. For unsignalized intersections, LOS shall be reported for each applicable individual movement in each analysis time period. The extent of vehicle queuing and its potential impact to

adjacent intersections shall be evaluated using a Poisson's distribution methodology (see Queuing Analysis section) or other method approved by the City.

For signalized intersections and proposed roadway segments, LOS D for each movement and for the intersection overall will be the design objective at development opening. Under no circumstances shall the development cause a drop below LOS D at signalized intersections for individual movements and overall for any analysis scenario.

Include a narrative explanation of the LOS results and the impact to area traffic operations. Interim-year traffic volumes and LOS shall be shown in graphical format for each analysis time period. For signalized intersections, the graphic should show overall intersection LOS. For unsignalized intersections, the graphic should show LOS for each applicable movement. All LOS output reports shall be included in an appendix to the TIS document. Electronic data files must accompany the TIS document submittal.

- 3) **Mitigation.** At study area intersections with projected LOS E or worse overall or for individual movements, mitigation measures shall be identified to improve intersection operations to an acceptable level. Mitigation measures shall also be identified for locations where LOS may be acceptable, but the analysis projects queuing issues with adjacent intersections. This section shall describe and present the results of the additional LOS analysis iterations conducted to identify the appropriate mitigation measures. If individual movements at unsignalized intersections are projected to operate below LOS D, include a discussion about possible mitigation measures or reasonable alternate routes.

The graphical presentation of LOS should include the original and mitigated overall LOS for signalized intersections and by applicable movement for unsignalized intersections. This information can be added to the traffic volume and LOS graphic.

- 4) **Sight-Distance Analysis.** A sight-distance analysis shall be included for each phase if any geometric conditions will have changed from those assessed for the Single-Phase development. For example, an additional intersection or driveway is planned to be added near a study area intersection, or signing/landscaping is planned to be installed in a lot adjacent to a site access.
- 5) **Traffic Safety.** A traffic safety analysis shall be included for each phase if any conditions will have changed from those assessed for the Single-Phase development.

6.2.6.3 Long-Term Planning Horizon

- 1) **Total Traffic.** The total projected traffic volume at the long-term horizon year shall be determined by adding the proposed site-generated traffic at buildout to the long-term background traffic.
- 2) **Level of Service.** The total traffic LOS within the study area at the horizon year shall be assessed for each analysis time period. The LOS shall be analyzed using the operational methodologies as detailed in the most recent version of the HCM. Signalized intersection analysis must use a cycle length consistent with current City signal timing policies. For signalized intersections, LOS shall be reported for each individual movement and for the intersection overall in each analysis time period. For unsignalized intersections, LOS shall be reported for each applicable individual movement in each analysis time period. The extent of vehicle queuing and its potential impact to adjacent intersections shall be evaluated using a Poisson's distribution methodology (see Queuing Analysis section) or other method approved by the City.

For signalized intersections and proposed roadway segments, LOS D for each movement and for the intersection overall will be the design objective at development opening. Under no circumstances

shall the development cause a drop below LOS D at signalized intersections for individual movements or overall, for any analysis scenario.

Include a narrative explanation of the LOS results and the impact to area traffic operations. Horizon-year traffic volumes and LOS shall be shown in graphical format for each analysis time period. For signalized intersections, the graphic should show overall intersection LOS. For unsignalized intersections, the graphic should show LOS for each applicable movement. All LOS output reports shall be included in an appendix to the TIS document. Electronic data files must accompany the TIS document submittal.

- 3) **Mitigation.** At study area intersections with projected LOS E or worse overall or for individual movements at signalized intersections, mitigation measures shall be identified to improve intersection operations to an acceptable level. Mitigation measures shall also be identified for locations where LOS may be acceptable, but the analysis projects queuing issues with adjacent intersections. This section shall describe and present the results of the additional LOS analysis iterations conducted to identify the appropriate mitigation measures. If individual movements at unsignalized intersections are projected to operate below LOS D, include a discussion about possible mitigation measures or reasonable alternate routes.

The graphical presentation of LOS should include the original and mitigated overall LOS for signalized intersections and by applicable movement for unsignalized intersections. This information can be added to the traffic volume and LOS graphic.

- 4) **Sight Distance Analysis.** A sight-distance analysis shall be included for the horizon year if any geometric conditions will have changed from those assessed for the single or interim phases. For example, an additional intersection or driveway is planned to be added near a study area intersection, or signing/landscaping is planned to be installed in a lot adjacent to a site access.
- 5) **Traffic Safety.** A traffic safety analysis shall be included for the horizon year if any conditions will have changed from those assessed for the single or interim phases.

6.2.7 Potential Mitigation Measures

Recommendations for potential mitigation measures, including new roadways, additional traffic lanes on existing roadways, and changes to traffic control, must be approved by the City prior to finalizing the TIS documentation.

Roundabouts as Mitigation Measures. At intersections of two roadways that are projected to operate at an LOS below the City standard or warrant signalization, the City may require evaluation of a modern Roundabout as a mitigation measure. The evaluation shall use a software analysis program approved by the City.

Traffic Signals as Mitigation Measures. Approval of new traffic signals will be based in part on warrants contained in the Manual on Uniform Traffic Control Devices (MUTCD) and any additional warrants established by the National Committee on Uniform Traffic Control Devices. In determining the location of a new signal, traffic progression is of paramount importance. Generally, a spacing of one-half mile for all signalized intersections should be maintained. This spacing is usually desirable to achieve good speed, capacity, and optimum signal progression. Pedestrian movements must be considered in the evaluation and adequate pedestrian clearance provided in the signal cycle split assumptions.

To provide flexibility and optimum two-way signal progression, a signal-progression analysis must be conducted that includes all proposed accesses that may require signalization. The section of roadway to be

analyzed for signal progression will be determined by the City and will include all existing and possible future signalized intersections.

The progression pattern calculations must use a cycle length consistent with the City's current signal timing policies. A desirable bandwidth of 50% of the signal cycle should be used where existing conditions allow. At currently unsignalized intersections that are expected to be signalized in the future, a 60% mainline and 40% cross-street cycle split should be assumed. Cycle split assumptions must relate to volume assumptions in the capacity analysis of individual intersections and consider pedestrian clearance times in the development of time/space diagrams. Document the progression analysis assumptions and results in a separate section of the TIS documentation.

The green time allocated to the cross street shall be no less than the time required for a pedestrian to clear the main street using MUTCD standards. Those intersections that would reduce the optimum bandwidth if a traffic signal were installed may be required to remain unsignalized and have turning movements limited by access design or median islands. Refer to Section 3 of the State Highway Access Code for signal spacing on state highways.

6.2.8 Queuing Analysis

A 95th percentile (using Poisson's distribution) queue length will be used to verify the adequacy of existing storage lengths and as the basis of storage length design for the long-term planning horizon. Alternative methodologies, such as Synchro 95th percentile length calculations, may be used with City approval. The queuing calculations must use a cycle length consistent with the City's current signal timing policies. Green times for specific movements shall be based on the movement's proportion of the critical lane volume, subject to phase minimums. Minimum greens shall be assumed to be 10 seconds for through movements and 4 seconds for left turns. Yellow change and red clearance intervals shall be assumed to be 3 seconds and 2 seconds, respectively, for left turn movements; 4 seconds and 2 seconds, respectively, for through movements. For lane groups that have multiple lanes, a lane utilization factor, in accordance with the HCM methodology, shall be applied to the calculation of queue lengths.

The queuing analysis results may be discussed concurrently with the LOS discussions for each analysis scenario or may be discussed in a separate section of the TIS documentation. Provide a table that summarizes the projected 95th percentile queue lengths by movement and recommended storage lane lengths. All queuing output reports shall be included in an appendix to the TIS document. Electronic data files must accompany the TIS document submittal.

6.2.9 Conclusions and Recommendations

This section summarizes the proposed development and presents the TIS findings to include:

- 1) **Identified Improvements.** Describe the location, nature, timing, and extent of proposed improvements that would be necessary to provide sufficient roadway and intersection capacity at design objective LOS. Provide a graphic of the improvements showing length, width, and other pertinent geometric features of the proposed improvements. Include the year at which the improvement must be in place to provide the objective LOS and indicate the party responsible for funding or implementing the improvements.
- 2) **Access Spacing Assessment.** Describe the spacing between proposed site access points and existing or approved future access points. Indicate whether the proposed access points comply with applicable City or State minimum spacing requirements. If a variance is requested, provide justification for approval of the variance.

- 3) **Site-Generated Traffic Volume Proportion.** Percentage estimates may be required by the City to identify the proportion of site-generated trips that will travel on various public improvements (both existing and proposed) such as signalization, roads, and bridges. This calculation shall be based on daily volumes and shall include background traffic growth along with trip generation from other developments whose traffic travels on the same improvements. Fair share percentage calculations shall be based on the trip generation and not a percentage of the total (growth plus site) traffic.

6.3 TIS Revisions

The Applicant must incorporate revisions to the TIS as required by the City. The need to require revisions will be based on the completeness of the TIS documentation, the thoroughness of the impact evaluation, the adequacy of proposed improvements and mitigation measures, and the compatibility of the TIS recommendations with the proposed access and development plan. The Applicant may discuss comments with the City reviewer prior to initiating the revisions. The TIS document will not be approved until all reviewer comments have been addressed to the City's satisfaction.

6.4 Traffic Impact Study Compliance Letter

An approved Standard TIS for a development that has been master planned may be used as reference for further planning of individual lots or subareas. The required TIS for subareas may take the form of a TIS Compliance Letter. If agreed to during the initial meeting with the City, the Applicant may submit a Compliance Letter confirming that the anticipated subarea traffic impacts are similar to or less than those projected in the Standard TIS. The City may also require additional information beyond the Compliance Letter.

6.4.1 Compliance Letter Qualifying Conditions

A TIS Compliance Letter may be considered if the following conditions are met:

- 1) A Standard TIS for the area has been completed and approved by the City.
- 2) Total projected trip generation (in accordance with the ITE Trip Generation Manual methodology) for the lot or subarea is less than or equal to the buildout scenario assumptions in the Standard TIS.
- 3) Trip distribution is expected to be similar to that projected in the Standard TIS.
- 4) Access to the lot or subarea is the same as proposed in the Standard TIS.

6.4.2 Submittal of a Compliance Letter

The Applicant must include the following information, at a minimum, in a letter prepared, stamped, and signed by a PE licensed in the State of Colorado:

- 1) Introduction/Project Description
 - a) Discussion of reason for submitting letter
 - b) *Figure:* Vicinity Map
 - c) *Figure:* Proposed Development Site Plan
- 2) Proposed Conditions
 - a) Discussion of proposed land use and ITE trip generation land use code
 - b) *Table:* Trip Generation Summary

- c) *Table*: Comparison of Trip Generation for Uses in Standard TIS to Trip Generation for Proposed Site Uses
 - d) Discussion of comparison between Standard TIS trip generation and proposed trip generation
- 3) Conclusions/Recommendations
 - a) Compare/contrast Standard TIS with proposed development
 - b) Finding of no significant change to projected site attributes, including
 - i) Operations
 - ii) Access
 - iii) Parcel layout
 - iv) Developer commitments to implementing improvements
- 4) Appendix
 - a) Cover page of Standard TIS
 - b) Conclusion page(s) of Standard TIS
 - c) *Figure*: Master Site Plan