



**THE TOWN OF SUMMERVILLE  
REQUEST FOR QUALIFICATIONS  
On-Call Services for Traffic Impact Analysis Studies**

**Closing Date and Time:  
March 1, 2019 - 2:00 p.m.**

**OVERVIEW AND PURPOSE**

The Town of Summerville, South Carolina (Town) and Dorchester County, South Carolina (County) are seeking proposals from qualified Professional Engineering Consultants (Consultant) to provide On-Call Services for the preparation of Traffic Impact Analysis (TIA) Studies associated with development plan approval requests. All proposed developments or re-developments that meet trip generation thresholds are required to complete a traffic impact analysis in accordance with Chapter 20 Article 5 of the Town's Development Ordinance, which was adopted by Town Council on January 10, 2019 and in accordance with Article XVII, Section 17.7 "Traffic Study" and Article XVII, Section 18.4 "Traffic Study" of Dorchester County's ordinance 04-13 as adopted by County Council on January 7, 2019, copies are included in Appendix A.

The TIA studies are expected to provide an independent review of potential traffic impacts by a professional firm not otherwise involved with the development project. The TIA will be used to make a determination as to whether adjacent public facilities can support the proposed development or some type of transportation improvements may be needed to mitigate impacts caused by the development.

The Town/County is interested in selecting up to four (4) qualified Consultants that are currently licensed to perform transportation engineering services in the State of South Carolina for a period of three (3) years with the option of two (2), one (1) year renewals. The anticipated number of TIAs to be prepared during this period will be dependent upon the amount, size and type of development. Consultants will be contracted with on an as-needed basis. TIA assignments will be rotated between the chosen Consultants as qualifying development projects are submitted.

**SCOPE OF WORK**

**General**

The adequacy of the roads to which the development takes access shall be assessed in the TIA and recommendations for improvements shall be made where operational or safety concerns exist. The TIA can be used to evaluate whether the scale of development is appropriate for a particular site and what improvements may be necessary, on and off the site, to provide safe and

efficient access and traffic flow. Refer to Appendix A for further clarification of when development projects will require a TIA and a listing of typical elements included in the TIA.

The Consultant will need to be familiar with the SCDOT Access and Roadside Management Standards (ARMS) Manual's policies and practices. System analysis software should be used for arterials and networks of multiple signalized and/or stop/yield controlled intersections. Simulation software should be utilized to aid in determining storage lengths, verifying lane geometry and lane continuity, and to identify overall network operations. Examples of software used in the TIA reports include Synchro, SimTraffic, SIDRA or VISSIM, and HCS.

### **Project Procedures**

The selected Consultant(s) will report directly to the Town/County. After the Town/County receives a development permit submittal by an applicant, the Consultant will prepare a final scope of work and fee-based proposal, and schedule for preparation of the TIA. In addition, the Consultant must provide an acknowledgement that no conflict of interest exists in working on this land development project. If the Town/County and Consultant cannot come to an agreement as to the time, scope and fees, the work will go to the next Consultant up for rotation. After final negotiations regarding scope of work, schedule, and fees are completed by the Town/County and Consultant, a work order will be prepared and the Consultant released to begin the TIA. The Consultant shall not proceed to perform any services on the TIA until the Town/County has given authorization.

### **Project Deliverables**

Initially, the Consultant will be requested to provide the following deliverables:

- One (1) paper copy of "Draft" TIA
- One (1) pdf version of "Draft" TIA

After the Town/County has reviewed the "Draft" report, the Town may issue comments to the Consultant for consideration and inclusion into the Final Draft report. After Town/County comments are reconciled, the Consultant will provide the following deliverables that will be distributed to the applicant and Town/County staff:

- Two (2) paper copies of "Final Draft" TIA,
- Two (2) pdf versions of the "Final Draft" TIA

After the Town/County and the applicant have reviewed the "Final Draft", the Town/County may issue additional comments to the Consultant for inclusion into a "Final" TIA Document. A Final report will be issued by the Consultant and the following deliverables provided:

- Two (2) paper copies of "Final" TIA, signed and sealed by Engineer.
- Two (2) pdf versions of the "Final" TIA

## **SUBMITTAL REQUIREMENTS**

Qualification Statements shall include the following information, organized and concisely written:

1. **Introductory Letter:** Indicate interest and commitment to perform on-call services for the Town/County. Include the firm's contact information and the name, telephone number and email address of the person who the Town/County should contact if questions arise regarding the RFQ response. Acknowledgement of RFQ addendums (if any) have been received by your firm and whether consideration of their content has been included in your proposal. The letter must be signed by an officer of the firm who is authorized to bind the firm to the contract and shall contain a statement to this effect.

2. **Scope of Work Understanding, Approach and Schedule** Respondents must include a clear description of the Consultant's understanding of the scope of work and discuss the approaches and methodologies to be used to best perform on-call services for the Town/County.

Provide an explanation on how your firm determines project schedule for a normal TIA request and what methods your firm uses to ensure schedule is met.

Include how the work described in this RFQ will fit into the total workload of the firm. Indicate any work or resources that are to be subcontracted or assume to be provided by the Town/County.

3. **Firm Qualifications and Experience:** Discuss the firm's qualifications, experience and history in performing on-call transportation engineering services in a timely manner, particularly for other governmental agencies.

Provide a summary of at least three (3) projects completed within the last five (5) years that included work related to the technical aspects and processes referenced in the Scope of Work, with particular emphasis on projects located in the Summerville area. Each of the project summaries should include a description of the project including cost, scope and duration, the key staff involved and project references (client name and contact information).

4. **Organization of Consultant Team:** Provide an organization chart of the project team specifying the dedicated project manager assigned to the team, key personnel assigned to the team, sub-consultants, and statements of responsibilities and roles of each team member.

5. **Key Personnel Qualifications and Experience:** Submit resumes of key personnel assigned to the work summarizing qualifications, related experience, and areas of expertise. For each individual, provide current professional registrations, educational background, years of experience with the consultant team and the office location in which he/she is located.

6. **Client References:** Provide a minimum of three (3) client references. References should be for projects completed within the last five (5) years. References should also be for work done for cities or other large public sector entities in South Carolina. Provide the

designated person's name, title, organization, address, telephone number and email addresses. Include a brief description of the projects that were completed under that client's direction.

7. **Fee Schedule:** Provide a list of hourly billing rates for each proposed team member, including direct and indirect expenses.

## **SCHEDULE**

The Town will accept Qualification Statements until 2:00 p.m. on March 1, 2019 at Town Hall. Interested firms shall submit three (3) hard copies of the RFQ Responses. Responses shall be sealed in an envelope addressed to:

Michelle Beltz  
Purchasing Agent  
Town of Summerville  
200 South Main Street  
Summerville, SC 29483

Any questions about the RFQ should be submitted in writing to Bonnie Miley at [bmiley@summervillesc.gov](mailto:bmiley@summervillesc.gov) by 5:00 PM on February 8, 2019. Answers to all questions will be posted on the town's website by 5:00 PM on February 15, 2019.

**No submittals will be accepted after 2:00 p.m. on Friday, March 1, 2019.** All submittals received by deadline will be considered without regard to age, race, creed, color, gender, disability, or national origin. All costs associated with the preparation of the submittal will be the responsibility of the prospective firm and will not be reimbursed.

The selection of firms is intended to be completed by March 15, 2019.

## **SELECTION CRITERIA**

The selection of the firm(s) will be made in accordance with the Town of Summerville Procurement Ordinance. Qualification Statements will not be accepted from any firm, company, individual, person or party, parent or subsidiary, against which the Town has an outstanding claim, or a financial dispute relating to a prior contractual performance with the Town. Qualification Statements may be withdrawn by offeror prior to, but not after, the time set for the opening. Upon receipt by the Town, the Qualification Statement shall become the property of the Town, without compensation to the offeror, for disposition or usage by the Town at its discretion. The Town shall have the sole discretion in evaluating both the Qualification Statement and the qualifications of the offerors. The Town reserves the right to reject any and all Qualification Statements and is not bound to accept any Qualification Statements, if the Qualification Statement acceptance is contrary to the best interest of the Town. The Town reserves the right to waive or modify any information, irregularity, or inconsistency in applications received, request modification to applications from any or all offerors during the review and negotiation, negotiate any aspect of the application with any firm and negotiate with more than one firm at the same time. All Qualification Statements shall be evaluated using the

same criteria and scoring process. All responses will be evaluated based on the following criteria:

1. Overall understanding of scope of work requirements – 20 points
2. Relevant Experience and Qualifications of firm and key personnel – 40 points
3. Past performance on similar on-call contracts with public sector entities – 20 points
4. Familiarity of the project team with the Summerville area and experience working on Summerville area projects – 20 points

TOTAL POINTS – 100 points

**Appendix A:**

Chapter 20 Article 5 of the Town's Development Ordinance  
(Adopted January 10, 2019)

Article XVII, Section 17.7 "Traffic Study" and Article XVII, Section 18.4  
"Traffic Study" of Dorchester County's Ordinance 04-13  
(Adopted January 7, 2019)

# CHAPTER 20 – PLANNING AND DEVELOPMENT

## ARTICLE V TRAFFIC IMPACT ANALYSIS

### Sec 20-151. - Traffic Impact Analysis

- (A) All developments shall have a Traffic Impact Analysis, based on Sec. 20-152 below, performed by an on-call consultant hired by the Town at the expense of the applicant. This analysis shall be undertaken to ensure that access to all proposed developments and subdivisions is accomplished in a safe manner. The standards in the South Carolina Department of Transportation's Access and Roadside Management Standards Manual shall serve as a guide for this Analysis, which shall include identification of the following:
  - (1) Access improvements that the applicant must install at his or her expense, such as deceleration lanes.
  - (2) The location of any curb cuts based on, but not limited to sight distances, existing roadway infrastructure, opposing driveways locations and shared access.
  - (3) Requirements for adequate driveway design, including but not limited to, turning radius and throat length.
- (B) The access requirements approved by the Town Engineer or designee shall be incorporated on development or subdivision plans prior to their approval.
- (C) If an applicant is required to provide site-related traffic improvements, the cost of implementing such improvements shall be borne by the applicant and no such costs shall be eligible for a credit or offset from any transportation impact fees.

### Sec 20-152. - Traffic Impact Analysis Required

- (A) Applicability: A Traffic Impact Analysis (TIA) shall be required for any development that would generate more than 100 trips during the peak hour on the adjacent street in accordance with the ITE Trip Generation Manual, latest edition.
  - (1) A second phase, second subdivision, or addition that generates traffic beyond this threshold when taken as a whole shall also require a TIA, even though that development does not qualify on its own.
  - (2) Change of Use: A new TIA will be required if the new use would generate traffic beyond the 100 trips during peak hour threshold.
  - (3) A TIA can be required at any time as determined by the Town Engineer or designee.
- (B) Thorough and complete TIA's are the responsibility of the applicant. Failure by the applicant to provide a complete TIA may result in review delays for their plat or plan.
- (C) Traffic Impact Analysis Plan Preparation
  - (1) The TIA shall be conducted by an engineer registered in South Carolina that is experienced in the conduct of traffic analysis, whom is one of the consultants the Town has previously selected for on-call traffic study services.
  - (2) Prior to beginning the traffic impact analysis plan, the applicant shall supply the Town with the following:

- (a) A written narrative describing the proposed land use(s), size and projected opening date of the project and all subsequent phases;
  - (b) A site location map showing surrounding development within a one-half mile of the property under development consideration; and
  - (c) A proposed site plan or preliminary subdivision plat illustrating access to public or private roads and connectivity to other contiguous developments.
- (3) The Town will rely upon the most current edition ITE trip generation manual or any alternative acceptable to the Engineering Department, and available information on land use, travel patterns and traffic conditions. After consulting with the SCDOT, the Town Engineer or designee will supply in writing to the applicant and/or his engineer the parameters to be followed in the study including the directional split of driveway traffic, trip distribution, background traffic growth rate, previously approved but not completed projects and the intersections to be analyzed along with any associated turning movement counts which are available or discussed and approved by the Town.
  - (4) After determination of the TIA's scope of services, the applicant shall provide a cost estimate of such services to the Town for review and concurrence. The applicant shall provide an amount equal to the estimate to the Town Engineer or designee, who will deposit the amount in an escrow or special account set up for this purpose before the consultant's services are obtained. Any funds not used shall be returned to the applicant in a timely manner without interest.
  - (5) Additional fees for the TIA may be required if: the applicant substantially amends the application; additional meetings involving the consultant are requested by the applicant; the consultant's appearance is requested at Planning Commission or Town Council meetings beyond what was initially anticipated; or the consultant's attendance is required at meetings with regional, state, or federal agencies or boards which were not anticipated in the earlier scope of services. The applicant must reimburse the Town these costs prior to the development plan or plat approval.

(D) Plan Contents

- (1) All phases of a development are subject to review, and all traffic plans for the entire development shall be integrated with the overall traffic analysis. A traffic impact analysis plan for a specific phase of development shall be applicable to the phase of development under immediate review. However, each phase of development shall expand and provide detailed analysis at the development plan stage beyond the estimates provided for at the concept plan or master plan stage.
- (2) Efficient traffic operations, safety and pedestrian accessibility are to be considered in the development plan. The adequacy of the roads to which the development takes access shall be assessed in the TIA. Recommendations for improvements shall be made where operational or safety concerns exist and installation of these improvements shall be required as a condition of any approval from the Town. The relative share of the capacity improvements needed shall be broken down as follows: development share, other developments share, any existing over capacity, and capacity available for future growth.
- (3) The following elements shall be included in a traffic impact analysis plan:
  - (a) Study Area - Description of the study area including surrounding land uses and expected development in the vicinity that would influence future traffic conditions. The study area shall include the intersections immediately adjacent to the development and those identified by the Town Engineer. These intersections



may include those not immediately adjacent to the development if significant site traffic could be expected to impact the intersection. If intersections impacted by the development are within a coordinated traffic signal system, then the entire system shall be analyzed. If the signal system is very large, a portion of the system may be analyzed if approved by the Town Engineer and SCDOT. A study area site map showing the site location is required.

- (b) Proposed Land Use - Description of the current and proposed land use including characteristics such as the number and type of dwelling units, gross and leasable floor area, number of employees, accompanied with a complete project site plan (with buildings identified as to proposed use). A schedule for construction of the development and proposed development stages should also be included.
- (c) Existing Conditions - Description of existing traffic conditions including existing peak hour traffic volumes adjacent to the site and levels of service for intersections in the vicinity, which are expected to be impacted. Existing traffic signal timings should be used. In general, AM and PM peak hour counts should be used, but on occasion other peak periods may need to be counted as determined by the Town Engineer or designee. In some cases, pedestrian counts will be required. Data should be adjusted for daily and seasonal variations. Existing counts may be used if taken within 12 months of the submittal of the TIS. In most cases, counts should be taken when school is in session unless otherwise determined by the Town Engineer or designee. Other information that may be required may include, but not limited to, crash data, stopping sight distances, and 50th and 85th percentile speeds.
- (d) Future Background Growth - Estimate of future background traffic growth. If the planned completion date for the project or the last phase of the project is beyond 1 year of the study an estimate of background traffic growth for the adjacent street network shall be made and included in the analysis. In general, the growth factor will be determined from local or statewide data. Also included, is the state, local, or private transportation improvement projects in the project study area that will be underway in the build-out year and traffic that is generated by other proposed developments in the study area.
- (e) Estimate of trip generation - The site forecasted trips should be based on the most recent edition of the ITE Trip Generation Manual. A table should be provided in the report outlining the categories and quantities of land uses, with the corresponding trip generation rates or equations, and the resulting number of trips. The reason for using the rate or equation should be documented. For large developments that will have multiple phases, the table should be divided based on the trip generation for each phase. Any reductions due to internal trip capture and pass-by trips, transit use, and transportation demand management should be justified and documented. All trip generation and trip reduction calculations and supporting documentation shall be included in the report appendix.
- (f) Trip Distribution and Traffic Assignment - The distribution (inbound versus outbound, left turn versus right turn) of the estimated trip generation to the adjacent street network and nearby intersections shall be included in the report and the basis should be explained. The distribution percentages with the corresponding volumes should be provided in a graphical format.
- (g) Analysis and Estimate of Impact - A capacity analysis should be performed at each of the

study intersections and access intersection locations (signalized and unsignalized) in the vicinity of the development. Intersection analysis shall include LOS determination for all approaches and movements. The levels of service will be based on the procedures in the latest edition of Transportation Research Board's Highway Capacity Manual. Coordination analysis will be required for the signal systems or portion of the signal systems analyzed.

- (h) Access Management Standards - The report shall include a map and description of the proposed access including any sight distance limitations, adjacent driveways and intersections, and a demonstration that the number of driveways proposed is the fewest necessary and that they provide safe and efficient traffic operations.
  - (i) Traffic signalization: If a traffic signal is being proposed, a signal warrant analysis shall be included in the study. The approval of a traffic signal on projected volumes may be deferred until volumes meet warrants given in the MUTCD, in which the developer shall provide funds for the future signal(s) to the Town to deposit in an escrow or special account set up for this purpose. The developer should make any laneage improvements during construction so that if in the horizon year a signal is warranted, one may be installed with little impact to the intersection.
  - (j) Mitigation and alternatives - The traffic impact study should include proposed improvements or access management techniques that will mitigate any significant changes in the levels of service. The Town Engineer will be responsible for final determination of mitigation improvements required to be constructed by the applicant.
- (E) Traffic Impact Analysis Plan Review: The Town Engineer or designee shall review all traffic impact analysis plans as part of the initial approval for the concept plan or master plan. Final traffic impact analysis plans shall be approved at the development plan phase.
- (F) Action on Traffic Impact Analysis Plan: The Town Engineer or designee must first approve the TIA in regard to completeness and accuracy. Following review of the required impact analysis plan, Town Engineer or designee shall recommend action as follows:
- (1) Approval of the traffic impact analysis as submitted;
  - (2) Approval of the traffic impact analysis plan with conditions or modifications as part of the development review and approval process. An acceptable traffic impact analysis plan with traffic mitigation measures may include the reduction of the density or intensity of the proposed development; phasing of the proposed development to coincide with state and/or county- programmed transportation improvements; applicant provided transportation improvements; fees in lieu of construction, or any other reasonable measures to ensure that the adopted traffic service level goals are met. If mitigation is required, it shall be required as a condition of any approval from the Town.
- (G) Timing of Implementation: If a traffic mitigation program is part of an approved traffic impact analysis plan, the developer may be required to place a performance bond on all traffic mitigation improvements required as a result of his project. This requirement may arise if the timing of the improvements needs to be synchronized with other scheduled improvements anticipated for the area. The amount of the performance bond shall be equal to 150% of the estimated construction cost for the required traffic mitigation improvements.
- (H) Responsibility for Costs of Improvements: The costs of implementation of an approved mitigation program shall be the responsibility of the applicant. No certificates of zoning compliance or building permits shall be issued unless provisions of the transportation impact analysis are met.

- (I) Traffic Goals: The average stop time delay in seconds per vehicle for each intersection determined to be critical to the traffic impact analysis for the proposed development shall be compared to the Town's adopted traffic service level goal of "D" for the average delay for all vehicles at any intersection and all movements and approaches to the intersection during the a.m. and p.m. peak hours.
- (J) Function and Safety Improvements: The Town Engineer or designee may require improvements to mitigate and improve the safety and function of multiple transportation modes the site traffic may impact. These improvements may not be identified in the TIA, but improvements to benefit the function and safety of the transportation system of the development site. These improvements may include but are not limited to center medians, sidewalks and/or bicycle accommodations, modifications to ingress and egress points, roadside shoulders, pavement markings, traffic calming and other traffic control devices.

# **ORDINANCE NO. 04-13**

## **ZONING & LAND DEVELOPMENT STANDARDS**

### **ARTICLE XVII, SECTION 17.7 “TRAFFIC STUDY”**

### **ARTICLE XVIII, SECTION 18.4 “TRAFFIC STUDY”**

#### **Section 17.7 Traffic Impact Analysis**

- (a) A Traffic Impact Analysis (TIA) shall be required for:
  - (1) All Major Subdivisions; and
  - (2) Any multi-family or non-residential development activity that would generate more than fifty (50) trips during a peak hour, or generate more than five hundred (500) trips during any single day.
  - (3) Change of use: A new TIA will be required if the new use would generate traffic beyond the 50 trips during peak hour threshold

#### **Section 18.4 Traffic Impact Analysis**

- (A) All developments shall have a Traffic Impact Analysis, based on Section 17.7, performed by an on-call consultant hired by Dorchester County at the expense of the applicant. This analysis shall be undertaken to ensure that access to all proposed developments and subdivisions is accomplished in a safe manner.
  - (1) The standards in the South Carolina Department of Transportation’s Access and Roadside Management Standards Manual shall serve as a guide for this Analysis, which shall include identification of the following:
    - (a) Access improvements that the applicant must install at his or her expense, such as deceleration lanes.
    - (b) The location of any curb cuts based on, but not limited to sight distances, existing roadway infrastructure, opposing driveways locations and shared access.
    - (c) Requirements for adequate driveway design, including but not limited to, turning radius and throat length.
  - (2) The access requirements approved by the County Engineer or designee shall be incorporated on development or subdivision plans prior to their approval.
  - (3) If an applicant is required to provide site-related traffic improvements, the cost of implementing such improvements shall be borne by the applicant and no such costs shall be eligible for a credit or offset from any transportation impact fees.
- (B) Traffic Impact Analysis Plan Preparation
  - (1) The TIA shall be conducted by an engineer registered in South Carolina that is experienced in the conduct of traffic analysis, whom is one of the consultants the County has previously selected for on-call traffic study services.
  - (2) Prior to beginning the traffic impact analysis plan, the applicant shall supply the County with the following:
    - (a) A written narrative describing the proposed land use(s), size and projected opening date of the project and all subsequent phases;
    - (b) A site location map showing surrounding development within a one-half mile of the property under development consideration; and
    - (c) A proposed site plan or preliminary subdivision plat illustrating access to public or private roads and connectivity to other contiguous developments.

- (3) The County will rely upon the most current edition ITE trip generation manual or any alternative acceptable to the County, and available information on land use, travel patterns and traffic conditions. After consulting with the SCDOT, the County Engineer or designee will supply to the County's on-call consultant, the parameters to be followed in the study including the directional split of driveway traffic, trip distribution, background traffic growth rate, previously approved but not completed projects and the intersections to be analyzed along with any associated turning movement counts which are available or discussed and approved by the County.
- (4) After determination of the TIA's scope of services, the applicant shall provide a cost estimate of such services to the County for review and concurrence, The applicant shall provide an amount equal to the estimate to the County Engineer or designee, who will deposit the amount in an escrow or special account set up for this purpose before the consultant's services are obtained. Any funds not used shall be returned to the applicant in a timely manner without interest.
- (5) Additional fees for the TIA may be required if: the applicant substantially amends the application; additional meetings involving the consultant are requested by the applicant; the consultant's appearance is requested at Planning Commission or County Council meetings beyond what was initially anticipated; or the consultant's attendance is required at meetings with regional, state, or federal agencies or boards which were not anticipated in the earlier scope of services. The applicant must reimburse the County for these costs prior to the development plan or plat approval.

(C) Plan Contents

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- (2) Efficient traffic operations, safety and pedestrian accessibility are to be considered in the development plan. The adequacy of the roads to which the development takes access shall be assessed in the TIA. Recommendations for improvements shall be made where operational or safety concerns exist and installation of these improvements shall be required as a condition of any approval from the County. The relative share of the capacity improvements needed shall be broken down as follows: development share, other developments share, any existing over capacity, and capacity available for future growth.
- (3) The following elements shall be included in a traffic impact analysis plan:
  - (a) Study Area - Description of the study area including surrounding land uses and expected development in the vicinity that would influence future traffic conditions. The study area shall include the intersections immediately adjacent to the development and those identified by the County Engineer. These intersections may include those not immediately adjacent to the development if significant site traffic could be expected to impact the intersection. If intersections impacted by the development are within a coordinated traffic signal system, then the entire system shall be analyzed. If the signal system is very large, a portion of the system may be analyzed if approved by the County Engineer and SCDOT. A study area site map showing the site location is required.
  - (b) Proposed Land Use - Description of the current and proposed land use including characteristics such as the number and type of dwelling units, gross and leasable floor area, number of employees, accompanied with a complete project site plan (with buildings identified as to proposed use). A schedule for construction of the development and proposed development stages should also be included.
  - (c) Existing Conditions - Description of existing traffic conditions including existing peak~ hour traffic volumes adjacent to the site and levels of service for intersections in the vicinity, which are expected to be impacted. Existing traffic signal timings should be used. In general, AM and PM peak hour counts should be used, but on occasion other peak periods may need to be counted as determined by the County Engineer or designee. In some cases, pedestrian counts will be

required. Data should be adjusted for daily and seasonal variations. Existing counts may be used if taken within 12 months of the submittal of the TIS. In most cases, counts should be taken when school is in session unless otherwise determined by the County Engineer or designee. Other information that may be required may include, but not limited to, crash data, stopping sight distances, and 50th and 85th percentile speeds.

- (d) Future Background Growth - Estimate of future background traffic growth. If the planned completion date for the project or the last phase of the project is beyond 1 year of the study an estimate of background traffic growth for the adjacent street network shall be made and included in the analysis. In general, the growth factor will be determined from local or statewide data. Also included, is the state, local, or private transportation improvement projects in the project study area that will be underway in the build-out year and traffic that is generated by other proposed developments in the study area.
  - (e) Estimate of trip generation - The site forecasted trips should be based on the most recent edition of the ITE Trip Generation Manual. A table should be provided in the report outlining the categories and quantities of land uses, with the corresponding trip generation rates or equations, and the resulting number of trips. The reason for using the rate or equation should be documented. For large developments that will have multiple phases, the table should be divided based on the trip generation for each phase. Any reductions due to internal trip capture and pass-by trips, transit use, and transportation demand management should be justified and documented. All trip generation and trip reduction calculations and supporting documentation shall be included in the report appendix.
  - (f) Trip Distribution and Traffic Assignment - The distribution (inbound versus outbound, left turn versus right turn) of the estimated trip generation to the adjacent street network and nearby intersections shall be included in the report and the basis should be explained. The distribution percentages with the corresponding volumes should be provided in a graphical format.
  - (g) Analysis and Estimate of Impact - A capacity analysis should be performed at each of the study intersections and access intersection locations (signalized and unsignalized) in the vicinity of the development. Intersection analysis shall include LOS determination for all approaches and movements. The levels of service will be based on the procedures in the latest edition of Transportation Research Board's Highway Capacity Manual. Coordination analysis will be required for the signal systems or portion of the signal systems analyzed.
  - (h) Access Management Standards - The report shall include a map and description of the proposed access including any sight distance limitations, adjacent driveways and intersections, and a demonstration that the number of driveways proposed is the fewest necessary and that they provide safe and efficient traffic operations.
  - (i) Traffic signalization: If a traffic signal is being proposed, a signal warrant analysis shall be included in the study. The approval of a traffic signal on projected volumes may be deferred until volumes meet warrants given in the MUTCD, in which the developer shall provide funds for the future signal(s) to the County to deposit in an escrow or special account set up for this purpose. The developer should make any laneage improvements during construction so that if in the horizon year a signal is warranted, one may be installed with little impact to the intersection.
  - (j) Mitigation and alternatives - The traffic impact study should include proposed improvements or access management techniques that will mitigate any significant changes in the levels of service. The County Engineer will be responsible for final determination of mitigation improvements required to be constructed by the applicant.
- (D) Traffic Impact Analysis Plan Review: The County Engineer or designee shall review all traffic impact analysis plans as part of the initial approval for the concept plan or master plan. Final traffic impact analysis plans shall be approved at the development plan phase.
- (E) Action on Traffic Impact Analysis Plan: The County Engineer or designee must first approve the TIA in regard to completeness and accuracy. Following review of the required impact analysis plan, County Engineer or designee shall recommend action as follows:

- (1) Approval of the traffic impact analysis as submitted;
  - (2) Approval of the traffic impact analysis plan with conditions or modifications as part of the development review and approval process. An acceptable traffic impact analysis plan with traffic mitigation measures may include the reduction of the density or intensity of the proposed development; phasing of the proposed development to coincide with state and/or county-programmed transportation improvements; applicant provided transportation improvements; fees in lieu of construction, or any other reasonable measures to ensure that the adopted traffic service level goals are met. If mitigation is required, it shall be required as a condition of any approval from the County.
- (F) Timing of Implementation: If traffic mitigation improvements are part of an approved traffic impact analysis plan, the improvements shall be completed prior to Final Plat approval for major subdivisions, or CO issuance for multi-family and non-residential projects. Off-site improvements must be made in accordance with an approved Traffic Study or as required by the County Engineer. The County Engineer may use his/her best engineering judgement to determine the most effective solution.
- (G) Responsibility for Costs of Improvements: The costs of implementation of an approved mitigation program shall be the responsibility of the applicant. No certificates of zoning compliance or building permits shall be issued unless provisions of the transportation impact analysis are met.
- (H) Traffic Goals: The average stop time delay in seconds per vehicle for each intersection determined to be critical to the traffic impact analysis for the proposed development shall be compared to the County's adopted traffic service level goal of "D" for the average delay for all vehicles at any intersection and all movements and approaches to the intersection during the a.m. and p.m. peak hours. Improvements must ensure that the level of service at final buildout, meets or exceeds the level of service at time of approval of the TIA.
- (I) Function and Safety Improvements: The County Engineer or designee may require improvements to mitigate and improve the safety and function of multiple transportation modes the site traffic may impact. These improvements may not be identified in the TIA, but improvements to benefit the function and safety of the transportation system of the development site. These improvements may include but are not limited to center medians, sidewalks and/or bicycle accommodations, modifications to ingress and egress points, roadside shoulders, pavement markings, traffic calming and other traffic control devices.