



Traffic Impact Analysis Regulations

24VAC30-155

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CHAPTER 155
TRAFFIC IMPACT ANALYSIS REGULATIONS

24VAC30-155-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Floor area ratio" means the ratio of the total floor area of a building or buildings on a parcel to the size of the parcel where the building or buildings are located.

"Local traffic impact statement" means a traffic impact statement accepted or prepared by a locality pursuant to its land development approval process and whose requirements regarding content are set out in the locality's ordinances or published policies, if such ordinances or policies have been reviewed and certified by VDOT as requiring acceptable standards of preparation and providing sufficient information to determine the current and future impacts of development proposals.

"Locality" means any local government, pursuant to § 15.2-2223 of the Code of Virginia, that must prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction.

"Network addition" means a group of interconnected street segments and intersections shown in a plan of development that is connected to the state highway system and meets the requirements of the Secondary Street Acceptance Requirements (24VAC30-92).

"Pedestrian facility coverage" means the ratio of: (length of pedestrian facilities, such as sidewalks, foot paths, and multiuse trails, along both sides of a roadway) divided by (length of roadway multiplied by two).

"Receipt" means the date on which a proposal or request for a meeting is first in the possession of VDOT or a locality or an agent thereof, as applicable.

"Redevelopment site" means any existing use that generates traffic and is intended to be developed as a different or denser land use.

"Service level" means a measure of the quality, level or comfort of a service calculated using methodologies approved by VDOT.

"Small area plan" means a plan of development for multiple contiguous properties that guides land use, zoning, transportation, urban design, open space, and capital improvements at a high level of detail within an urban development area or for a transit-oriented development that is at least 1/2 square mile in size unless otherwise approved by VDOT due to proximity to existing moderate to high density developments. A small area plan shall include the following: (i) densities of at least four residential units per acre and at least a floor area ratio of 0.4 or some proportional combination thereof; (ii) mixed-use neighborhoods, including mixed housing types and integration of residential, office, and retail development; (iii) reduction of front and side yard building setbacks; and (iv) pedestrian-friendly road design and connectivity of road and pedestrian networks.

"State-controlled highway" means a highway in Virginia that is part of the interstate, primary, or secondary systems of state highways and that is maintained by the state under the direction and supervision of the Commonwealth Transportation Commissioner. Highways for which localities receive maintenance payments pursuant to §§ 33.1-23.5:1 and 33.1-41.1 of the Code of Virginia and highways maintained by VDOT in accordance with §§ 33.1-31, 33.1-32, 33.1-33, and 33.1-68 of the Code of Virginia are not considered state-controlled highways for the purposes of determining whether a specific land development proposal package must be submitted to meet the requirements of this regulation.

"Traffic impact statement" means the document prepared in accordance with best professional practice and standards that assesses the impact of a proposed development on the transportation system and recommends improvements to lessen or negate those impacts.

"Transit-oriented development" means an area of commercial and residential development at moderate to high densities within 1/2 mile of a station for heavy rail, light rail, commuter rail, or bus rapid transit transportation and includes the following: (i) densities of at least four residential units per acre and at least a floor area ratio of 0.4 or some proportional combination thereof; (ii) mixed-use neighborhoods, including mixed housing types and integration of residential, office, and retail development; (iii) reduction of front and side yard building setbacks; and (iv) pedestrian-friendly road design and connectivity of road and pedestrian networks.

"Transportation demand management" means a combination of measures that reduce vehicle trip generation and improve transportation system efficiency by altering demand, including but not limited to the following: expanded transit service, employer-provided transit benefits, bicycle

and pedestrian investments, ridesharing, staggered work hours, telecommuting, and parking management including parking pricing.

"Urban development area" means an area designated on a local comprehensive plan pursuant to § 15.2-2223.1 of the Code of Virginia that includes the following: (i) densities of at least four residential units per acre and at least a floor area ratio of 0.4 or some proportional combination thereof; (ii) mixed-use neighborhoods, including mixed housing types and integration of residential, office, and retail development; (iii) reduction of front and side yard building setbacks; and (iv) pedestrian-friendly road design and connectivity of road and pedestrian networks.

"VDOT" means the Virginia Department of Transportation, the Commissioner of Highways, or a designee.

"VDOT traffic impact statement" means a traffic impact statement prepared pursuant to 24VAC30-155-60.

24VAC30-155-20. Authority.

Section 15.2-2222.1 of the Code of Virginia requires localities to submit comprehensive plans and amendments to comprehensive plans that will substantially affect transportation on state-controlled highways to VDOT in order for the agency to review and provide comments on the impact of the item submitted. This section also requires localities to submit traffic impact statements along with proposed rezonings that will substantially affect transportation on state-controlled highways to VDOT for comment by the agency. Chapter 527 of the 2006 Acts of Assembly directs VDOT to promulgate regulations for the implementation of these requirements.

24VAC30-155-30. Comprehensive plan and comprehensive plan amendment.

A. Plan and amendment submittal. Prior to adoption of any comprehensive plan pursuant to § 15.2-2223 of the Code of Virginia, any part of a comprehensive plan pursuant to § 15.2-2228 of the Code of Virginia, or any amendment to any comprehensive plan as described in § 15.2-2229 of the Code of Virginia, including small area plans, if required by this section of this chapter, the locality shall submit such plan or amendment to VDOT for review and comment, such submission should take place at least 100 days prior to anticipated final action by the locality. The Virginia Department of Transportation shall, upon request, provide localities with technical assistance in preparing the transportation plan of the comprehensive plan. The

comprehensive plan or comprehensive plan amendment package shall be submitted to VDOT if it is reasonably anticipated to substantially affect transportation on state controlled highways. Substantially affect, for the purposes of comprehensive plans, includes substantial changes or impacts to the existing transportation network. For the purposes of this section, a substantial impact shall be defined as a change that would allow the generation of 5,000 additional vehicle trips per day on state-controlled highways compared to the existing comprehensive plan, assuming the highest density of permissible use in accordance with the Institute of Transportation Engineers Trip Generation, 8th Edition, 2008 or, subject to the approval of VDOT, the regional model as adopted by the local Metropolitan Planning Organization, and substantial change shall include those changes that materially alter future transportation infrastructure, travel patterns, or the ability to improve future transportation facilities on state-controlled highways.

B. Required elements. The submission by the locality to VDOT shall contain sufficient information so that VDOT may evaluate the system of new and expanded transportation facilities, outlined in the transportation plan, that are needed to support the current and planned development of the territory covered by the plan. In order to conduct this evaluation, the package submitted to VDOT shall contain the following items:

1. For a comprehensive plan or a transportation plan, the locality shall provide one paper and one electronic copy of the following:

a. A cover sheet, containing:

(1) Contact information for the locality, and

(2) Summary of major changes made to the comprehensive plan or transportation plan;

b. The proposed comprehensive plan or transportation plan, and the following elements:

(1) Inventory – an inventory (written or graphic) of the existing transportation network, which shall include at a minimum all roadways within the Federal Aid system.

(2) Assumptions – planning assumptions shall be detailed, since these assumptions directly influence the demand placed on the transportation system. Population growth, employment growth, location of critical infrastructure such as water and sewer facilities, among others, are examples of planning assumptions that may be addressed.

(3) Needs assessment – written or graphic evaluation of the transportation system's current and projected performance and conditions. The needs assessment identifies specific deficiencies.

(4) Recommendations – proposed improvements or additions to the transportation infrastructure. Recommendations should be specific so that the need, location and nature of the proposed improvements are clear and understandable. Localities are encouraged to include pedestrian, bicycle, transit, rail and other multimodal recommendations as they deem appropriate. The transportation plan shall include a map showing road and transportation improvements, taking into account the current and future needs of residents in the locality while considering the current and future needs of the planning district within which the locality is situated. Recommended improvements shall include cost estimates as available from VDOT.

2. For an amendment to a comprehensive plan or transportation plan, the locality shall provide one paper and one electronic copy of the following:

a. A cover sheet, containing:

(1) Contact information for the locality;

(2) Summary of proposed amendment or amendments to the comprehensive plan or transportation plan; and

(3) Overview of reasoning and purpose for amendments.

b. Application forms and documentation presented to or prepared by the local jurisdiction,

c. Associated maps or narratives that depict and detail the amendment under consideration,

d. Any changes to the planning assumptions associated with the amendment,

e. Local assessment of the potential impacts the amendment may have on the transportation system, and

f. Those elements identified in subdivision 1 b of this subsection that VDOT determines are needed in order to review and comment on impacts to state-controlled highways.

C. Small area plans for urban development areas and transit oriented developments. A

locality that develops a small area plan for all or a portion of an urban development area or

transit-oriented development and corresponding amendments to their comprehensive plan, as described in § 15.2-2229 of the Code of Virginia, that will have a substantial effect on the state transportation network pursuant to this section of the regulation, may in lieu of submitting a comprehensive plan amendment package as required under subsection B of this section submit a small area plan package.

The small area plan package submitted by the locality to VDOT shall contain sufficient information and data so that VDOT may determine the location of the area impacted by the small area plan, its size, its impact on state-controlled highways, and the methodology and assumptions used in the analysis of the impact. Submittal of an incomplete small area plan package shall be considered deficient in meeting the submission requirements of § 15.2-2222.1 of the Code of Virginia and shall be returned to the locality and the applicant, if applicable, identifying the deficiencies noted. A small area plan package submitted to VDOT shall contain the following items:

1. A cover sheet containing:
 - a. Contact information for locality;
 - b. Small area plan location, highways and transit facilities adjacent to site, and parcel number or numbers;
 - c. Proposal summary with development names, size, and proposed zoning;
2. A VDOT traffic impact statement prepared in accordance with 24VAC30-155-60; and
3. A plan of development for the area encompassed by the small area plan.

D. Review process. VDOT may pursuant to § 15.2-2222.1 of the Code of Virginia request a meeting with the locality to discuss the plan or amendment. The request must be made within 30 days of receipt of the proposal. VDOT must provide written comments to the locality within 90 days of the receipt of the plan or plan amendment or by such later deadline as may be agreed to by the parties. VDOT will conduct its review and provide official comments to the locality for inclusion in the official public record of the locality. VDOT shall also make such comments available to the public. Nothing in this section shall prohibit a locality from acting on a comprehensive plan or plan amendment if VDOT's comments on the submission have not been received within the timelines in this section.

E. Concurrent consideration. For the purposes of this regulation, when a related comprehensive plan or comprehensive plan amendment and a rezoning proposal that cover the same geographical area are being considered concurrently by a locality, only a rezoning package as required under 24VAC30-155-40 shall be prepared and provided to VDOT for review.

24VAC30-155-40. Rezoning.

A. Proposal submittal. The locality shall submit a package to VDOT within 10 business days of receipt of a complete application for a rezoning proposal if the proposal substantially affects transportation on state-controlled highways. All trip generation calculations used for the purposes of determining if a proposal meets the criteria shall be based upon the rates or equations published in the Institute of Transportation Engineers Trip Generation, 8th Edition, 2008, and shall not be reduced through internal capture rates. For redevelopment sites, trips currently generated by existing development that will be removed may be deducted from the total site trips that are generated by the proposed land use. However, no submission shall be required under this section if the rezoning proposal consists of no changes in allowable land use. Furthermore, no submission shall be required if the rezoning proposal results in lower maximum daily trip generation and no increase in maximum trip generation for AM Peak Hour of the adjacent street, PM Peak Hour of the adjacent street, and Weekend Peak Hour when compared to the hourly trip generation of land uses allowed by right under the current zoning, excepting governmental uses such as schools and libraries.

For the purposes of this section, a rezoning proposal shall substantially affect transportation on state-controlled highways if it meets or exceeds one or more of the following trip generation criteria:

1. Within a jurisdiction in which VDOT has maintenance responsibility for the secondary highway system, if the proposal generates more than 5,000 vehicle trips per day at the site's connection to a state-controlled highway. For a site that does not have an entrance onto a state-controlled highway, the site's connection is assumed to be wherever the road network that the site connects with attaches to a state-controlled highway. In cases where the site has multiple entrances to highways, volumes on all entrances shall be combined for the purposes of this determination;

2. Within a jurisdiction in which VDOT does not have maintenance responsibility for the local highway system, if the proposal generates more than 5,000 vehicle trips per day and whose nearest property line is within 3,000 feet, measured along public roads or streets, of a connection to a state-controlled highway; or
3. The proposal for residential rezoning generates more than 400 daily vehicle trips on a state-controlled highway and, once the site generated trips are distributed to the receiving highway, the proposal's vehicle trips on the highway exceed the daily traffic volume such highway presently carries. For the purposes of determining whether a proposal must be submitted to VDOT, the traffic carried on the state-controlled highway shall be assumed to be the most recently published amount measured in the last traffic count conducted by VDOT or the locality on that highway. In cases where the site has access to multiple highways, each receiving highway shall be evaluated individually for the purposes of this determination.

B. Required proposal elements. The package submitted by the locality to VDOT shall contain sufficient information and data so that VDOT may determine the location of the rezoning, its size, its effect on state-controlled highways, and methodology and assumptions used in the analysis of the effect. Submittal of an incomplete package shall be considered deficient in meeting the submission requirements of § 15.2-2222.1 of the Code of Virginia and shall be returned to the locality and the applicant, if applicable, identifying the deficiencies noted. A package submitted to VDOT shall consist of one paper copy and one electronic copy and include the following items:

1. A cover sheet containing:
 - a. Contact information for locality and developer (or owner) if applicable;
 - b. Rezoning location, highways adjacent to site, and parcel number or numbers;
 - c. Proposal summary with development name, size, and proposed zoning; and
 - d. A statement regarding the proposal's compliance with the comprehensive plan.
2. A local traffic impact statement or, if the local requirements for traffic statements contained in ordinances or policies have not been certified by VDOT, a VDOT traffic impact statement.
3. A concept plan of the proposed development.

C. Rezoning proposals associated with small area plans.

1. A traffic impact statement prepared for a small area plan pursuant to 24VAC30-155-30 C, or initiated for a small area plan at the request of a locality prior to February 4, 2010, and that contains substantially the same elements as those of a VDOT traffic impact statement, shall serve as the traffic impact statement required pursuant to this section for any rezoning proposals developed in furtherance of the adopted small area plan and related comprehensive plan amendments provided the following:

a. That the small area plan package is accompanied by a cover letter that includes a statement that the assumptions made in the traffic impact statement prepared for the small area plan remain generally valid.

b. That the following are accurate:

(1) The rezoning proposal is in substantial conformance with the adopted small area plan. A deviation in density must be greater than 10% to be considered no longer in substantial conformance with the adopted small area plan.

(2) The character and volume of the trip generation by the proposed uses are similar to those proposed by the small area plan.

(3) All other assumptions made in the traffic impact statement prepared for the small area plan remain generally valid.

2. In instances where the assumptions made in the traffic impact statement prepared for the small area plan are no longer valid, the traffic impact statement may be updated. If the traffic impact statement is updated, it shall serve as the traffic impact statement required pursuant to this section for any rezoning proposals developed in furtherance of the adopted small area plan and related comprehensive plan amendments.

D. Review process. After formal submission of a rezoning proposal for review, VDOT may, pursuant to § 15.2-2222.1 of the Code of Virginia, request a meeting with the locality and rezoning applicant to discuss potential modifications to the proposal to address any concerns or deficiencies. The request must be made within 45 days of receipt by VDOT of the proposal. VDOT must provide written comments to the locality and the rezoning applicant within 45 days of VDOT's receipt of the proposal if no meeting is scheduled or has been requested or within 120 days of the receipt of the proposal otherwise. VDOT shall not reject or require resubmission, if

the package has been prepared in accordance with best professional practice and substantially documents the expected impacts of the proposal. If VDOT determines that (i) the package has not been prepared in accordance with best professional practice, (ii) the package fails to substantially document the expected impacts of the proposal, or (iii) the submission is substantially incomplete, VDOT may request of the applicant, in writing or at the above mentioned meeting, modifications to address concerns. If the concerns are not adequately addressed within 30 days of the transmission of such concerns, VDOT may require resubmission. VDOT shall conduct its review and provide official comments to the locality for inclusion in the official public record. The Department's comments on the proposed rezoning shall be based upon the comprehensive plan, regulations and guidelines of the Department, engineering and design considerations, adopted regional or statewide plans, and short and long term traffic impacts on and off site. VDOT shall also make such comments available to the public. Nothing in this section shall prohibit a locality from acting on a rezoning proposal if VDOT's comments on the submission have not been received within the timelines in this section.

24VAC30-155-50. (Repealed.)

24VAC30-155-60. VDOT traffic impact statement.

A. A VDOT traffic impact statement (VTIS) assesses the impact of a proposed development on the transportation system and recommends improvements to lessen or negate those impacts. It shall (i) identify any traffic issues associated with access from the site to the existing transportation network, (ii) outline solutions to potential problems, (iii) address the sufficiency of the future transportation network, and (iv) present improvements to be incorporated into the proposed development.

If a VTIS is required, data collection shall be by the locality, developer, or owner, as determined by the locality and the locality shall prepare or have the developer or owner prepare the VTIS. If the locality prepares the VTIS it shall provide a copy of the complete VTIS to the applicant when one is provided to VDOT. The completed VTIS shall be submitted to VDOT.

The data and analysis contained in the VTIS shall be organized and presented in a manner acceptable to VDOT and consistent with this regulation.

B. Scope of work meeting.

1. For proposals that generate less than 1,000 vehicle trips per peak hour of the generator representatives of the locality, the applicant, or the locality and the applicant may request a scope of work meeting with VDOT to discuss the required elements of a VTIS for any project and VDOT shall reply to such request within 30 days of its receipt of such a request and provide a date that is no more than 60 days from such receipt, time and location for such a scope of work meeting to both the locality and the applicant, if applicable.
2. For proposals that generate 1,000 or more vehicle trips per peak hour of the generator representatives of the locality and applicant, if applicable, shall hold a scope of work meeting with VDOT to discuss the required elements of a VTIS. Once a locality or applicant has contacted VDOT regarding the scheduling of a scope of work meeting, VDOT shall reply to both the locality and the applicant, if applicable, within 30 days of such contact and provide a date that is no more than 60 days from such contact, time and location for such a meeting.

At a scope of work meeting pursuant to this section, the locality, the applicant and VDOT shall review the elements, methodology and assumptions to be used in the preparation of the VTIS, and identify any other related local requirements adopted pursuant to law. The results of the initial scoping meeting may be adjusted in accordance with sound professional judgment and the requirements of this regulation if agreed upon by VDOT, the locality, and applicant, if applicable.

C. Required elements. The required elements and scope of a VTIS are dependent upon the scale and potential impact of the specific development proposal being addressed by the VTIS as determined by VDOT in its sole discretion.

1. At a minimum, the VTIS shall include the elements shown in the table below. The site generated peak hour trips in the table below shall be based upon the gross vehicle trip generation of the site less internal capture and reductions, if applicable. When the type of development proposed would indicate significant potential for walking, bike or transit trips either on- or off-site, the VTIS shall estimate multimodal trips. All distances in the table below shall be measured along roads or streets.

Item	Site Generated Peak Hour Trips		
	Less than 500	500 to 999	1,000 or more
Background information			
List of all nonexistent transportation improvements assumed in the analysis	Required	Required	Required
Map of site location, description of the parcel, general terrain features, and location within the jurisdiction and region.	Required	Required	Required
Description of geographic scope/ limits of study area.	Within 2,000 feet of site and any roadway on which 50 or more of the new peak hour vehicle trips generated by the proposal are distributed – not to exceed one mile	Within 2,000 feet of site and any roadway on which 10% or more of the new vehicle trips generated by the proposal are distributed – not to exceed two miles	To be determined by VDOT in consultation with the locality
Plan at an engineering scale of the existing and proposed site uses.	Required	Required	Required
Description and map or diagram of nearby uses, including parcel zoning.	Required	Required	Required
Description and map or diagram of existing roadways.	Required	Required	Required
Description and map or diagram of programmed improvements to roadways, intersections, and other transportation facilities within the study area.	Required	Required	Required
Analysis of Existing Conditions			
Collected daily and peak hour of the generator traffic volumes, tabulated and presented on diagrams with counts provided in an appendix.	Required	Required	Required
Analyses for intersections and roadways identified by VDOT. Delay and Level of Service (LOS) are tabulated and LOS is presented on diagrams for each lane group.	Required	Required	Required

When the type of development proposed would indicate significant potential for walking, bike or transit trips either on - or off - site, analyses of pedestrian and bicycle facilities, and bus route or routes and segment or segments, tabulated and presented on diagrams, if facilities or routes exist.	Within 2,000 feet of site	Within 2,000 feet of site	To be determined by VDOT in consultation with the locality
Speed Study	If requested by VDOT	If requested by VDOT	If requested by VDOT
Crash history near site	If requested by VDOT	If requested by VDOT	If requested by VDOT
Sight distance	If requested by VDOT	If requested by VDOT	If requested by VDOT
Analysis of Future Conditions without Development			
Description of and justification for the method and assumptions used to forecast future traffic volumes.	Required	Required	Required
Analyses for intersections and roadways as identified by VDOT. Delay and Level of Service (LOS) are tabulated and LOS is presented on diagrams for each lane group.	Required	Required	Required
When the type of development proposed would indicate significant potential for walking, bike or transit trips either on - or off - site, analyses of pedestrian and bicycle facilities, and bus route or routes and segment or segments tabulated and presented on diagrams, if facilities or routes exist or are planned.	Within 2,000 feet of site	Within 2,000 feet of site	To be determined by VDOT in consultation with the locality at the scope of work meeting
Trip Generation			
Site trip generation, with tabulated data, broken out by analysis year for multi-phase developments, and including justification for deviations from ITE rates, if appropriate.	Required	Required	Required
Description and justification of internal capture reductions for mixed use developments and pass-by trip reductions, if appropriate, including table of calculations used.	Required	Required	Required

Site Traffic Distribution and Assignment			
Description of methodology used to distribute trips, with supporting data.	Required	Required	Required
Description of the direction of approach for site generated traffic and diagrams showing the traffic assignment to the road network serving the site for the appropriate time periods.	Required	Required	Required
Analysis of Future Conditions With Development			
Forecast daily and peak hour of the generator traffic volumes on the highway network in the study area, site entrances and internal roadways, tabulated and presented on diagrams.	Future background + site generated traffic, at each expected phase and at build - out or six years after start, whichever is later	Future background + site generated traffic, at each expected phase, at build - out, and six years after build - out, which may be extended or reduced by VDOT in consultation with the locality	At a minimum the future background + site generated traffic, at each expected phase, at build - out, and six years after build - out; may be extended by VDOT in consultation with the locality
Analyses for intersections and roadways identified by VDOT. Delay and Level of Service (LOS) are tabulated and LOS presented on diagrams for each lane group.	Required	Required	Required
When the type of development proposed would indicate significant potential for walking, bike or transit trips either on - or off - site, analyses of pedestrian and bicycle facilities, and bus route or routes and segment or segments tabulated and presented on diagrams, if facilities or routes exist or are planned.	Within 2,000 feet of site	Within 2,000 feet of site	To be determined by VDOT in consultation with the locality
Recommended Improvements			
Description and diagram of the location, nature, and extent of proposed improvements, with preliminary cost estimates as available from VDOT.	Required	Required	Required

Description of methodology used to calculate the effects of travel demand management (TDM) measures, if proposed, with supporting data.	Required if TDM proposed	Required if TDM proposed	Required if TDM proposed
Analyses for all proposed and modified intersections in the study area under the forecast and site traffic. Delay, and Level of Service (LOS) are tabulated and LOS presented on diagrams for each lane group. For intersections expected to be signalized, MUTCD Signal Warrant analysis or ITE Manual for Traffic Signal Design, as determined by VDOT, presented in tabular form.	Required	Required	Required
When the type of development proposed would indicate significant potential for walking, bike or transit trips either on - or off - site, analyses of pedestrian and bicycle facilities, and bus route or routes and segment or segments tabulated and presented on diagrams, if facilities or routes exist or are planned.	Within 2,000 feet of site	Within 2,000 feet of site	To be determined by VDOT in consultation with the locality
Conclusions			
Clear, concise description of the study findings.	Required	Required	Required

Notwithstanding the geographic scope noted above, the geographic scope of the study noted above may be reduced or enlarged based upon layout of the local transportation network, the geographical size of the development, and the traffic volume on the existing network, as determined by VDOT in consultation with the locality and the applicant, if applicable.

Typically, analysis will be conducted for any roadway on which the additional trips generated by the proposal have a materially detrimental impact on traffic conditions. The analysis presented in the VTIS need not include all roadway and roadway segments located within the geographic scope of the study as determined by VDOT.

2. A VTIS for a development proposal that only meets the low volume road submission criterion (24VAC30-155-40 A 3) shall, at a minimum, consist of the following elements, unless otherwise directed by VDOT.

- a. All elements contained in the Background Information portion of the above table, except the geographic scope/limits of study area is limited to the highway fronting the proposed development and the closest intersection, in each direction if applicable, of that highway with a highway that has an average daily traffic volume higher than the fronting highway.
 - b. A roadway safety inventory study of the roadway segment or segments between the site entrance to the nearest intersections with the higher traffic volume highways, to include such elements as, but not limited to, speed limit, existing warning signs, pavement and shoulder type, pavement and shoulder width, intersection sight distances, and safe horizontal curve speeds.
 - c. Daily and peak hour traffic volumes presented on diagrams, with counts provided in an appendix, for the fronting highway at the site, at the highway's intersections with the higher volume highway, and for the higher volume highways at their intersection with the fronting highway.
 - d. All relevant elements contained in the Trip Generation portion of the above table.
 - e. Projected daily and peak hour of the generator traffic volumes assuming build-out of the proposal, presented on diagrams for the receiving highway at the site, at the highway's intersection with the higher volume highways, and for the higher volume highways at their intersections with the receiving highway.
 - f. Delay and level of service analysis for the intersections of the receiving highway with the higher volume highways.
 - g. A comparison of the existing geometrics of the fronting highway under proposed build-out traffic conditions with the geometric standards, based upon functional classification and volume, contained in the Road Design Manual, 2011 (VDOT).
3. A VTIS for a rezoning proposal may be prepared in accordance with the “Less than 500 Site Generated Peak Hour Trips” category in the table above, regardless of actual projected trip generation, provided that:
- a. The rezoning proposal is in conformance with a locality’s adopted comprehensive plan that was reviewed in accordance with 24VAC30-155-30; and

b. The review of the comprehensive plan included the submission to VDOT of a technical evaluation of the traffic impacts for anticipated development based on the future land use policies and map.

D. Methodology and standard assumptions. A VTIS shall be prepared based upon methodology and assumptions noted below or as may be agreed upon by VDOT based upon the results of a scope of work meeting held by VDOT pursuant to this section.

1. Data collection. Preparers shall collect traffic data in accordance with the identified study area. The count data shall include at a minimum, weekday 24-hour counts, and directional turning movement counts during AM and PM peak times of the day. The 24-hour counts shall include vehicle classification counts. With approval of VDOT, data collected by the transportation professional preparer within the last 24 months may be used, likewise for data from the VDOT count program.

The preparer shall monitor traffic operations during data collection to ensure extraneous events such as vehicle crashes or special event traffic do not affect integrity of count data. Preparers collecting data for utilization in traffic impact studies shall normally avoid data collection during the following instances:

- a. Holidays or times of the year when the traffic patterns are deemed to be unrepresentative of typical conditions, unless required by VDOT or the locality, or both.
- b. Summer months if school or schools in proximity.
- c. Fridays and weekends unless required by VDOT or the locality, or both.
- d. Other times of the year contingent upon existing adjacent land use activities.
- e. During times of inclement weather.

2. Trip generation. Estimates of trip generation by a proposed development shall be prepared using the Institute of Transportation Engineers Trip Generation, 8th Edition, 2008, unless VDOT agrees to allow the use of alternate trip generation rates based upon alternate published guides or local trip generation studies. VDOT shall at all times after July 1, 2011, have at least one non-ITE trip generation methodology or alternative rate approved for the use in preparation of small area plan traffic impact statements pursuant to 24VAC30-155-30 C that recognizes the benefits of reduced vehicle trip generation and vehicle miles traveled from developments that meet the

criteria for a small area plan pursuant to this regulation. Such alternate methodology or rate can be modified based upon local factors if agreed to at a scoping meeting. Rezoning proposals shall assume the highest vehicle trip generating use allowable under the proposed zoning classification. In determining which trip generation process (equation or rate) may be used, the preparer shall follow the guidance presented in the Trip Generation Handbook, Second Edition – an ITE Recommended Practice, 2004, which is summarized here, except rates may be utilized if the criteria for the use of regression equations are not met. Regression equations to calculate trips as a result of development shall be utilized, provided the following is true:

- a. Independent variable falls within range of data; and
- b. Either the data plot has at least 20 points; or
- c. R^2 is greater than 0.75, equation falls within data cluster in plot and standard deviation greater than 110% of weighted average rate.

If the above criteria are not met, then the preparer can use average trip rates, though if the following do not apply a rate based upon the study of similar local sites should be considered:

- d. At least three data points exist;
- e. Standard deviation less than 110% of weighted average rate; and
- f. Weighted average rate falls within data cluster in plot.

3. Internal capture and pass-by trips.

a. Internal capture rates consider site trips "captured" within a mixed use development, recognizing that trips from one land use can access another land use within a development without having to access the adjacent street system. Mixed use developments include a combination of residential and nonresidential uses or a combination of nonresidential uses only. Internal capture allows reduction of site trips from adjacent intersections and roadways. For traffic impact statements prepared for small area plans pursuant to 24VAC30-155-30 C the internal capture rate or rates may be based on the non-ITE trip generation methodology approved by VDOT. For ITE-based methodologies, unless otherwise approved by VDOT, the following internal capture rates should be used if appropriate:

- (1) Residential with a mix of nonresidential components - use the smaller of 15% of residential or 15% nonresidential trips generated.
- (2) Residential with office use - use the smaller of 5.0% of residential or 5.0% of office trips generated.
- (3) Residential with retail use - for AM peak hour, use the smaller of 5.0% residential or 5.0% retail trips generated; for PM peak hour, use the smaller of 10% residential or 10% retail trips generated; for 24-hour traffic, use the smaller of 15% residential or 15% retail trips generated.
- (4) Hotel/motel with office use - use 15% of hotel/motel trips, unless the overall volume of the office traffic is more than the overall volume of hotel/motel traffic use in which case use the smaller of 10% of the hotel/motel traffic or the office traffic.
- (5) Multiuse development with more than five million square feet of office and retail - internal capture rate should be determined in consultation with and approval of VDOT.
- (6) Office with retail use – use the smaller of 5% office or retail trips generated.
- (7) Some combination of the above, if approved by VDOT.

b. Pass-by trip reductions consider site trips drawn from the existing traffic stream on an adjacent street, recognizing that trips drawn to a site would otherwise already traverse the adjacent street regardless of existence of the site. Pass-by trip reductions allow a percentage reduction in the forecast of trips otherwise added to the adjacent street from the proposed development. The reduction applies only to volumes on adjacent streets, not to ingress or egress volumes at entrances serving the proposed site. Unless otherwise approved by VDOT, the pass-by rates utilized shall be those reported in Trip Generation Handbook, Second Edition – an ITE Recommended Practice, 2004. For traffic impact statements prepared for small area plans pursuant to 24VAC30-155-30 C, the pass-by trip reductions may be based on the non-ITE trip generation methodology approved by VDOT.

4. Trip distribution. In the absence of more detailed information, trip distribution shall be in accordance with logical regional travel patterns as suggested by existing highway directional split and intersection movements or population and destination site distribution and shall recognize the effects of increased street connectivity if such streets meet the requirements of

the Secondary Street Acceptance Requirements (24VAC30-92). If more detailed information is available from trip origin/destination studies, marketing studies, or regional planning models, this may be used to distribute trips upon approval of VDOT.

5. Planning horizon. In general, the analysis years shall be related to (i) the opening date of the proposed development, (ii) build-out of major phases of a multiyear development, (iii) long-range transportation plans, and (iv) other significant transportation network changes. The preparer should establish the planning horizon in consultation with and subject to the acceptance of VDOT.

6. Background traffic growth. Unless directed by VDOT, geometric growth (or compound growth), based upon historical growth rates, shall generally be used for determining future background traffic levels where extensive traffic-count history is available and capacity constraint is not appropriate. This growth rate replicates "natural growth" and is typical for projecting urban growth. Natural growth of traffic can be adjusted consistent with traffic forecasts associated with previously submitted local land development projects within the study area.

7. Future conditions. For the purpose of the VTIS, future conditions shall include background traffic and additional vehicle trips anticipated to be generated by approved but not yet constructed or improved projects.

8. Level of service calculation. Level of service (LOS) analysis for highways shall utilize the techniques described in the Highway Capacity Manual, 2010 (TRB). Neither the intersection capacity utilization method nor the percentile delay method may be used in the traffic impact calculations of delay and level of service. Preparers shall consult with VDOT on which traffic analysis software package is to be used to conduct the LOS calculations. The results shall be tabulated and displayed graphically, with levels of service provided for each lane group for each peak period. All data used in the calculations must be provided along with the results of the capacity analysis. Any assumptions made that deviate from the programmed defaults must be documented and an explanation provided as to why there was a deviation. Electronic files used for the analysis shall be provided to VDOT as a digital submission (e.g. .hcs, .sy6, .inp, .trf files), along with the printed report. If intersections analyzed are in close proximity to each other so that queuing may be a factor, VDOT may require the inclusion of an analysis with a micro simulation model. Unless actual on-ground conditions dictate otherwise, preparers

should use the following defaults when utilizing the Highway Capacity Software (HCS) or other approved programs when evaluating roadway components:

- a. Terrain – choose the appropriate terrain type. Most of the state will be level or rolling, but some areas may qualify for consideration as mountainous.
- b. Twelve-foot wide lanes.
- c. No parking or bus activity unless field conditions include such parking or bus activity or unless the locality has provided VDOT with a written statement of intent for the services to be provided.
- d. Peak hour factor by approach – calculate from collected traffic counts (requires at least a peak hour count in 15-minute increments). However, the use of peak hour factors lower than 0.85 shall only be allowed if based upon the average of more than three peak hour counts. For future conditions analysis, unless specific site conditions can be expected to create extreme peak hour factors, default peak hour factors between 0.92 and 1.00 should be used.
- e. Heavy vehicle factor – calculate from collected traffic (classification) counts or obtain from VDOT count publications. For future conditions analysis with development traffic, the existing heavy vehicle factor should be adjusted based upon the nature of the traffic being generated by the development.
- f. Area type – non-center of business district.

The VTIS shall identify any existing or proposed bicycle and pedestrian accommodation that would be affected by the proposal. For the purposes of this subsection, a bicycle accommodation is defined as on-street bike lanes, paved shoulders of roadways that are not part of the designated traveled way for vehicles, or exclusive and shared off-street bicycle paths.

For the purposes of this subsection, a pedestrian accommodation is defined as sidewalks, intersection treatments and exclusive or shared off-street trails or paths. If significant potential for bicycle or pedestrian trips exists, the VTIS shall include current and future service level analyses at build-out for existing or proposed bicycle and pedestrian accommodations. When the proposal requires or includes improvements or modifications to the roadway, bicycle or pedestrian accommodations, the VTIS shall analyze the impacts of such improvements and

modifications on bicycle and pedestrian accommodations and service levels, and provide recommendations for mitigation of adverse impacts.

The VTIS shall provide analysis for all bus service with routes that have, or will have a station or stop within 2,000 feet of the proposal. The VTIS shall evaluate and discuss potential for increased demand for bus use due to the proposal, addressing whether such increases will result in longer dwell time at stops or increase the need for buses on a route. The quality of service analysis for bus service shall be determined in accordance with the Transit Capacity and Quality of Service Manual, 2nd Edition, 2003 (TRB). The VTIS shall provide both route and segment quality of service. The VTIS may consider the benefits of dedicated bus lanes for more frequent and rapid service. The VTIS shall provide recommendations for mitigation of adverse impacts where adverse impacts are expected to the quality of service to bus service. If an analysis of pedestrian quality or level of service is required for calculation of the bus quality of service, the preparer shall use a methodology approved by VDOT.

9. Trip reduction, and pedestrian and bicycle accommodations. When a proposal meets the criteria listed below, the preparer of the VTIS may reduce the number of vehicle trips generated by the proposal in the VTIS analysis in accordance with this subsection.

Notwithstanding the percentages below, the total number of reductions used by a preparer in accordance with this subsection shall not exceed 500 vehicle trips per peak hour of the generator unless otherwise approved by VDOT. The trip reductions for traffic impact statements prepared for small area plans pursuant to 24VAC30-155-30 C may be based on the non-ITE trip generation methodology approved by VDOT and are not subject to limitations or requirements of this subdivision.

- a. Pedestrian accommodations. For the purposes of this subsection, a pedestrian accommodation is defined as a sidewalk, pedestrian path, or multiuse trail. Where a pedestrian service level of A exists, vehicle trips per peak hour of the generator may be reduced by 4.0% for those portions of the development within a 2,000-foot radius of the connections between the proposed development and the adjoining network. Where a pedestrian service level of B exists, vehicle trips per peak hour of the generator may be reduced by 3.0%; where a pedestrian service level of C exists, vehicle trips per peak hour of the generator may be reduced by 1.5% for the portion of the development noted above. These reductions may only be taken if:

- (1) Pedestrian facility coverage in a 2,000-foot radius of the connections to the proposed development is on or along at least 80% of the road network;
- (2) The pedestrian facilities inside and outside the development provide reasonably direct access to traffic generators; and
- (3) There are at least two of the 10 major land use classifications, as defined in ITE Trip Generation, 8th Edition, 2008, within the 2,000-foot radius.

b. Bicycle accommodations. For the purposes of this subsection, a bicycle accommodation is defined as a street with a design speed of 25 MPH or less that carries 400 vehicles per day or less, on-street bike lanes, a pedestrian accommodation, paved shoulders of roadways that are not part of the designated traveled way for vehicles and are at least two feet wide, or exclusive and shared off-street bicycle paths. Where a bicycle service level of A exists, vehicle trips per day may be reduced by 3.0%. Where a bicycle service level of B exists, vehicle trips per day may be reduced by 2.0%. Where a bicycle service level of C exists, vehicle trips per day may be reduced by 1.0%. These reductions may only be taken if:

- (1) Bicycle accommodations within a 2,000-foot radius of the connections to the proposed development exist on or along at least 80% of the road network;
- (2) The bicycle accommodations inside and outside the development provide reasonably direct access to traffic generators; and
- (3) There are at least two of the 10 major land use classifications as defined in ITE Trip Generation, 8th Edition, 2008, within the 2,000-foot radius.

10. Modal split and trip reduction. All vehicle trip reductions used in the VTIS pursuant to this subsection are subject to the approval of VDOT.

a. If a proposal is located within 1/2 mile along roadways, pedestrian or bicycle accommodations of a transit station, excluding bus stops and stations, reasonable vehicle trip reductions of vehicle trips generated by the proposal may be made with approval of VDOT. The preparer shall submit documentation to justify any such vehicle trip reductions used with the VTIS. When a proposal is located more than 1/2 mile but less than two miles from a transit stop, excluding bus stops and stations, with bicycle parking accommodations,

additional bicycle modal split reductions may be utilized. The analysis of capacity of the parking accommodations shall be included in the VTIS when such trip reductions are used.

b. If a proposal is located within 1/4 mile along roadways, pedestrian or bicycle accommodations of a bus stop or station where the segment and route service levels are C or higher, reasonable vehicle trip reductions of vehicle trips generated by the proposal may be made with the approval of VDOT. The preparer shall submit documentation to justify any such vehicle trip reductions used with the VTIS.

c. Transit and bus modal split data from similar developments within the geographic scope of the VTIS or one mile of the proposal, whichever is greater, shall be collected if the VTIS vehicle trip reductions are used pursuant to this subsection and similar developments exist within the geographic scope of the VTIS or one mile of the proposal, whichever is greater.

11. Signal warrant analysis. Traffic signal warrant analysis shall be performed in accordance with the procedures set out in the Manual on Uniform Traffic Control Devices, 2003, revised 2007, or ITE Manual of Traffic Signal Design, 1998, as determined by VDOT.

12. Recommended improvements. Recommendations made in the VTIS for improvements to transportation facilities shall be in accordance with the geometric standards contained within the Road Design Manual, 2011 (VDOT).

24VAC30-155-70. Departmental analysis.

After concluding its review of a proposed comprehensive plan or transportation plan or plan amendment, or rezoning, VDOT shall provide the locality and applicant, if applicable, with a written report detailing its analysis and when appropriate recommending transportation improvements to mitigate any potential adverse impacts on state-controlled highways. VDOT shall provide recommendations for facilitating other modes of transportation including but not limited to transit, bus, bicycle and pedestrian facilities or accommodations where such facilities or accommodations are planned or exist, or where such facilities have a significant potential for use. In addition, VDOT shall provide the locality and the applicant, if applicable, with preliminary recommendations regarding compliance with other VDOT regulations such as the Secondary Street Acceptance Requirements (24VAC30-92), the Access Management Regulations: Principal Arterials (24VAC30-72), and the Access Management Regulations: Minor Arterials, Collectors, and Local Streets (24VAC30-73).

24VAC30-155-80. Fees.

A. Locality initiated proposals. No fee shall be charged for review of any comprehensive plan, comprehensive plan amendment, or rezoning proposal initiated by a locality or other public agency.

B. Proposals containing a traffic impact statement as described in subdivision C 1 of

24VAC30-155-40. No fee shall be charged for the review of a rezoning submission that properly includes a traffic impact statement submitted under subdivision C 1 of 24VAC30-155-40.

C. All other proposals. Any package submitted to a locality by an applicant that will be subject to VDOT review pursuant to this chapter shall include any required payment in a form payable directly to VDOT.

1. For initial or second review of all comprehensive plans, comprehensive plan amendments, and transportation plans submitted to VDOT for review, not initiated on behalf of the locality, there shall be a fee of \$1,000 charged to the applicant. This fee shall be paid upon submission of a plan to VDOT for review.

2. For initial or second review of rezoning proposals accompanied by a traffic impact statement not initiated on behalf of the locality, there shall be a single fee for both reviews determined by the number of adjusted vehicle trips generated per peak hour, as follows:

Submission made due to 24VAC30-155-40 A 3 (Low volume road criterion) -	\$250
All other submissions -	\$1,000

The fee shall be paid upon submission of a package to VDOT for review.

3. For a third or subsequent submission pursuant to subdivisions 1 or 2 of this subsection, that is requested by VDOT on the basis of the failure of the applicant to address deficiencies previously identified by VDOT, the applicant shall be required to pay an additional fee as though the third or subsequent submission were an initial submission and requiring the fees identified above. An applicant or locality may appeal to the district administrator a determination by VDOT that a submitted package failed to address deficiencies previously identified by VDOT.

24VAC30-155-90. (Repealed.)

24VAC30-155-100. (Repealed.)

DOCUMENTS INCORPORATED BY REFERENCE (24VAC30-155)

Requests for information pertaining to the availability and cost of any of these publications should be directed to the address indicated for the specific document. Requests for documents available from VDOT may be obtained from VDOT's division and representative indicated; however, VDOT documents may be available over the Internet at www.vdot.virginia.gov.

Highway Capacity Manual, 2010, Transportation Research Board, 500 Fifth Street NW, Washington, DC 20001

ITE Manual of Traffic Signal Design (1998), Institute of Transportation Engineers, 1627 Eye Street, NW, Suite 600, Washington, DC 20006.

Manual on Uniform Traffic Control Devices for Streets and Highways, effective 2003, revised 2007, Federal Highway Administration, Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954.

Road Design Manual, 2011, VDOT 1401 E. Broad Street, Richmond, Virginia 23219.

Transit Capacity and Quality of Service Manual, 2nd Edition, 2003, Transportation Research Board of the National Academies, Keck Center of the National Academies, Transportation Research Board, 500 Fifth Street, NW, Washington, DC 20001.

Trip Generation, 8th Edition, 2008, Institute of Transportation Engineers, 1627 Eye Street, NW, Suite 600, Washington, D.C. 20006.

Trip Generation Handbook, Second Edition – an ITE Recommended Practice, 2004, Institute of Transportation Engineers, 1627 Eye Street, NW, Suite 600, Washington, D.C. 20006.