

POTENTIAL CRITERIA FOR REQUIRING TRAFFIC IMPACT ANALYSES - A REVIEW OF CURRENT PRACTICES



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ABSTRACT

A Traffic Impact Analysis (TIA) is a methodology that reviews existing traffic conditions and volumes, development traffic conditions and volumes, and their impact on the existing and future roadway network. Gloucester County requested research to establish criteria for when a Traffic Impact Analysis should be required in response to a request for rezoning or a conditional use permit. HRTPO staff outlined national, state, and local governments in the Hampton Roads region and other local governments in Virginia guidelines. Gloucester County officials can use this comprehensive review of criteria to develop their criteria for TIA. Other localities can use this study to review their existing criteria.

ACKNOWLEDGMENT & DISCLAIMERS

Prepared in cooperation with the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), and Virginia Department of Transportation (VDOT). The contents of this report reflect the views of the Hampton Roads Transportation Planning Organization (HRTPO). The HRTPO is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the FHWA, VDOT or Hampton Roads Planning District Commission. This report does not constitute a standard, specification, or regulation. FHWA or VDOT acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute endorsement/approval of the need for any recommended improvements nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

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POTENTIAL CRITERIA FOR REQUIRING TRAFFIC IMPACT ANALYSES – A REVIEW OF CURRENT PRACTICES

PREPARED BY:



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INTRODUCTION

A Traffic Impact Analysis (TIA) is a methodology that reviews existing traffic conditions and volumes, development traffic conditions and volumes, and their impact on the existing and future roadway network. This analysis is a useful tool for identifying potential traffic problems and can play an important role in the success of the development of the overall network. Potential traffic problems include:

- On-site congestion and congestion on adjacent roadways
- Inadequate site access
- The high number of existing crashes

By performing this analysis as early as possible, the localities and the developers can share information and jointly address the traffic-related problems.

Gloucester County requested research to establish some criteria for when a Traffic Impact Study should be required in response to a request for rezoning or a conditional use permit, e.g., number of trips threshold, current conditions of the roadway, etc. The county currently relies on VDOT to identify when a traffic study is required during its review process. Research is desired on national, state and local guidance.

The purpose of this report is to assist Gloucester County in establishing criteria for requiring a Traffic Impact Analysis (TIA) in response to request for rezoning or conditional use permits.

The following chapter comprehensively reviews the criteria for requiring a TIA. To obtain these criteria, the HRTPO staff contacted (by phone or email) or web researched:

- Transportation Research Board (TRB) for national guidelines on TIAs
- VDOT on state guidelines for TIAs
- Local governments in the Hampton Roads region
- Other local governments in Virginia

HRTPO staff summarized the findings in tables that outline the criteria for requiring TIAs. The concluding chapter gives recommendations on the criteria. Finally, in Appendix A, the HRTPO staff provided a framework for Traffic Impact Analysis.

CRITERIA FOR REQUIRING TRAFFIC IMPACT ANALYSES

HRTPO staff reviewed national, state, and local guidance for requiring Traffic Impact Analyses in this chapter.

National Guidance for Requiring Traffic Impact Analysis

The Transportation Research Board (1998) suggests that a detailed site impact analysis study should be performed for each of the following (Associates, 1998):

- All developments that can be expected to generate more than 100 peak hour vehicle trips on the adjacent streets.
- All developments that generate less than 100 peak-hour vehicle trips if that development affects local "problem" areas such as high accident locations, currently congested areas or areas of critical local issues.
- Any change in the land use or density that will change the site traffic generation by more than 15% where at least 100 new peak-hour vehicle trips are involved.
- Any change will cause the directional site distribution to change by more than 20 percent.

State Guidance for Requiring Traffic Impact Analysis (VDOT Regulations)

Regulation 24 VAC 30-155-40 (24 VAC 30-155-40) outlines the proposal submission process and timeline, required elements, rezoning proposals associated with small area plans, and the review process.

VDOT Updated Administrative Guidelines for the Traffic Impact Analysis Regulations (24VAC30-155-60. VDOT traffic impact statement) outlines the thresholds for requiring TIA in case of rezoning:

- All other land uses, including residential: 5,000 vehicles/day on state highways OR 5,000 vehicles/day on locality-maintained streets AND within 3,000 feet of a state highway
- No submission is required if the rezoning will generate less daily traffic and no increase in existing AM/PM peak hour traffic compared to the trip generation of land uses allowed by right under the property's current zoning, except governmental uses.

The following subchapters outline the criteria requiring TIAs from local governments in Hampton Roads and other local governments in Virginia.

Hampton Roads Local Governments Guidelines

HRTPO Staff contacted Hampton Roads localities (by email or phone) to obtain the criteria that will require Traffic Impact Analysis. Table 1 summarizes those criteria.

Table 1 Summary of TIAs criteria for Hampton Roads localities (excluding Gloucester County)

Source: HRTPO analysis of data

Locality Name	Criteria for requiring Traffic Impact Analyses	Source
Chesapeake	All rezoning requests which will increase traffic by more than fifty (50) vehicle trips a day require Traffic Impact Analysis.	Chesapeake's Level of Service policy
Franklin	There are no criteria requiring Traffic Impact Analysis. It is the Zoning Administrator's discretion who uses the standard VDOT criteria.	Carlee Smith City Planner & Environmental Specialist
Hampton	TIA is required when the site generates or attracts 100 trips per hour during the adjacent street peak hour.	Design & Construction Standards, Public Works, City of Hampton, 2019
Isle of Wight County	TIA is required for any development proposed, which will generate 200 average daily trips or more based on vehicular trip generation rates as defined by the Institute of Transportation Engineers' most recent publication, "Trip Generation".	Section 1-1015 of the Zoning Ordinance
James City County	A traffic impact analysis for all projects that expect to generate 100 or more weekday peak hour trips to and from the site during the hours of operation and/or those projects with an entrance or exit onto a roadway with a level of service "D" or lower shall be required under the traffic impact analysis submittal requirement policy.	Zoning Ordinance

Table 1 Continued

Source: HRTPO analysis of data

Locality Name	Criteria for requiring Traffic Impact Analyses	Source
Newport News	A Traffic Impact Analysis study shall be filed with the site plan for any development in this district if all uses in the development collectively generate more than 5,000 trips per day based on the most current ITE Trip Generation Manual.	Sec. 45-1407, Traffic Impact Code of Ordinance
Norfolk	<p>General criteria that require Traffic Impact Analysis:</p> <ul style="list-style-type: none"> a. Development sites/subdivisions that generate an increase of twenty percent or greater in peak hour trips or 150 vehicle trips per hour in the peak hour. b. Land Use – any rezoning, including conditional use changes that ALSO requires an amendment to the City's General Plan. 	City of Norfolk Department of Public Works Division of Transportation Access Management Guidelines, June 2002
Poquoson	A Traffic Impact Analysis is required to be submitted whenever there is a conditional use permit request or when the development is expected to generate 75 or more additional trips to and from the site during peak hours.	Garret Feagans, Engineer, City of Poquoson
Portsmouth	City Engineer reserves the right to require a TIA, but the zoning ordinance requires TIA on any zoning or use permit application that exceeds 1000 trips or 100 trips per peak hour.	Carl E. Jackson, AICP Manager of Transportation Planning City of Portsmouth

Table 1 Continued

Source: HRTPO analysis of data

Locality Name	Criteria for requiring Traffic Impact Analyses	Source
Suffolk	Traffic Impact Studies shall be required for any Comprehensive Plan Amendment, rezoning, request for preliminary subdivision plat, site plan, Conditional Use Permit, and any other development.	City of Suffolk Public Facilities Manual 2014
Southampton County	All development plans (Comprehensive Plan amendments, zoning map amendment requests, Conditional Use Permits, site plans) must be sent to VDOT for review, and they determine the need for a TIA.	Beth Lewis, AICP Community Development Director Southampton County
Virginia Beach	<p>A TIA will be required where any of the following apply:</p> <ol style="list-style-type: none"> 1. Under circumstances where the Comprehensive Plan prescribes the use of a traffic impact study before a rezoning is granted; 2. Any development that would potentially generate 150 or more trips during the peak period of the generator, according to the rates or equations published in the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual and Trip Generation Handbook, An ITE Proposed Recommended Practice; 3. Any rezoning request, whether conditioned or otherwise, does not conform to the Comprehensive Plan. 4. When required by City Code for conditional zoning. 5. At the discretion of the City of Virginia Beach Traffic Engineer. 	Public Works Standards Manual (Appendix H)

Table 1 Continued

Source: HRTPO analysis of data

Locality Name	Criteria for requiring Traffic Impact Analyses	Source
Williamsburg	When deemed necessary by the planning director or the planning commission, a traffic impact analysis showing the effect of traffic generated by this project on surrounding streets and neighborhoods shall be conducted.	Sec. 21-44. - Special use permit application requirements
York County	If a proposed development is expected to generate 1,000 or more trips per day – or 100 or more in either the AM or PM peak hour – a TIA is required.	Timothy C. Cross, AICP Deputy Director of Planning and Development Services York County

Guidelines From Other Local Governments in Virginia

Gloucester County is located in the lower part of the Middle Peninsula, bounded on the south by the York River and the lower Chesapeake Bay on the east. Gloucester County is comprised of both suburban and rural areas. HRTPO staff composed a list of Virginia localities that resemble Gloucester County and contacted them (by phone or email) to gather criteria for requiring Traffic Impact Analysis. Table 2 summarizes the criteria requiring Traffic Impact Analysis for localities in Virginia.

Table 2 Summary of criteria requiring TIAs for Virginia localities resembling Gloucester County

Source: HRTPO analysis of data

Locality Name	Criteria for requiring Traffic Impact Analyses	Source
Louisa	Projects generating 5,000 or more ADT are required to present a TIA for review, per VDOT.	Sec. 86-308. - Planned Unit Development District (PUD) - statement of intent, (3) (b) and VDOT's Traffic Impact Analysis regulations
Madison	No response	
Fluvanna	TIA will be required if the proposed development exceeds 1,000 vehicle trips per day.	VDOT's Updated Administrative Guidelines for the Traffic Impact Analysis Regulations
King William	A TIA is required for any major subdivision, planned unit development, rezoning case, or most proposed businesses, and at the request of the Zoning Administrator. Planning Commission requires a traffic impact analysis before reviewing major subdivisions, planned unit developments, and rezoning cases.	County Zoning and Subdivision Ordinance
King and Queen	No response	

Table 2 Continued

Source: HRTPO analysis of data

Locality Name	Criteria for requiring Traffic Impact Analyses	Source
Hanover	Rezoning requests projected to generate more than 380 vehicle trips per day (40 lots and greater), but fewer than 5000 vehicle trips per day will be expected to submit a Traffic Impact Analysis (TIA).	Business and Residential Development Road Improvements Transportation Policy, Hanover County Board of Supervisors, March 2013
Culpeper	No response	
Fauquier	<p>Residential: 100 VPH on state-controlled highways or 100 VPH on locality-maintained streets AND within 3000 feet of a state-maintained highway, or 200 VPD AND more than doubles current traffic volume on a state-controlled highway.</p> <p>All other land uses: 250 VPH or 2500 VPD on state-controlled highways, or 250 VPH or 2500 VPD on locality-maintained streets AND within 3000 feet of a state-maintained highway.</p>	Design Standards Manual, 1st Edition, Chapter 3: Transportation, January 2019
Stafford	TIA will be required if the proposed development exceeds 1,000 vehicle trips per day. Only when the project is a redevelopment would the county discount the current trips.	Alex Owsiah, PE Transportation Program Manager Capital Engineering & Construction Stafford County Public Works
Loudoun	All new proposed developments subject to legislative approval require an analysis. The analysis is scoped with each applicant to determine the specifics required for each application.	Brian Wegener, AICP, CZA Acting Division Manager Loudon County Department of Planning and Zoning

CONCLUSION

Traffic Impact Analysis is a vital tool in evaluating development suitability from a transportation standpoint. Traffic congestion results in several problems, including economic costs due to delayed travel times, stop-and-go situations of traffic on the transportation network, attendant air pollution, and road accidents. As one section of roadway becomes congested, roadway users will use other roadways not necessarily intended for through traffic. As a result, TIAs are common as a planning tool to foresee demands on the transportation network.

HRTPO staff reviewed criteria that will require TIA for Hampton Roads localities. Most Hampton Roads localities have criteria that will trigger TIA; several localities use VDOT's criteria. Criteria for most Hampton Roads localities for requiring TIA is the number of daily trips, ranging from 50 to 5,000 daily trips. Three localities in Hampton Roads (Suffolk, Southampton County and Williamsburg) require a TIA for any major planning development.

Moreover, the staff composed a list of Virginia localities that resemble Gloucester County, i.e., those considered half rural and half suburban. Staff reviewed the criteria for requiring TIA for these localities and summarized them in the table. Other local governments in Virginia use the number of daily trips, ranging from 380 to 5,000, as a criteria for requiring TIA

Gloucester County officials can use this comprehensive review of criteria to develop their criteria for TIA. Other localities can use this study to review their existing criteria.

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APPENDIX A – FRAMEWORK FOR TRAFFIC IMPACT ANALYSES

The benefits of a TIA study are (Edwards, 2000):

- Forecast additional traffic and distribution/assignment associated with the new development based on acceptable local practices
- Determine the improvements/modifications/restrictions that are necessary to accommodate the new development
- Assist communities in land use decision-making and in allocating scarce resources to areas that need improvement
- Identify potential problems with the proposed development which may influence a developer's decision to pursue it
- Allow the community to assess the impacts that a proposed development may have and help to ensure safe and reasonable traffic conditions on streets after the development is complete
- Reduce the negative impacts created by developments by helping to ensure that the transportation network can accommodate the development
- Provide direction to community decision-makers and developers of expected impacts and protect the community investment in the street system

A basic framework for traffic impact analysis is shown in Figure 1. The steps needed to develop the methodology before performing a traffic analysis are (Faheem, 2012):

- **Study area requirements** determine the extent of the TIA, which depends on the area and location of the proposed development and the traffic conditions near the area.
- **The analysis years and periods** should be related to the opening date of the new developments, the significant transportation network changes, and anticipated peak traffic patterns.

The analysis itself has several steps (Faheem, 2012):

- **Trip generation** is performed using one or multiple transportation modes for a defined purpose at a specific time.
- **Trip distribution** analyzes the trip-making characteristics between the proposed development and off-site areas. The total trips generated by the development must be distributed and assigned to the road network.
- **Mode split** estimates the number of travelers between zones anticipated to use modes other than automobiles in TIA.
- **Traffic assignment** involves estimating the amount of generated traffic allocated to the alternative routes on the road network. The product of this process is the total number of developments generated by trips by direction and turning movement on each segment of the study area road network.
- **Future condition analysis** determines the impact of trips generated by the development on the transportation system's performance.
- **Mitigation measures** will be required if the proposed development would cause a facility or traffic movement to exceed LOS-D.
- **Level of Service and Capacity Analysis** should be done when the proposed development and other developed projects in the study area vicinity generate traffic more than the required level of service and capacity.
- **Site Access, Circulation and Parking** will ensure the safe and efficient traffic flow through the road system and access to their destination by limiting and separating the number of conflicting points.
- **Review and permitting** are the final steps toward TIA approval. All site impact analysis and review should undergo a review and permitting process where all appropriate agencies and department divisions can comment on the site impact analysis.

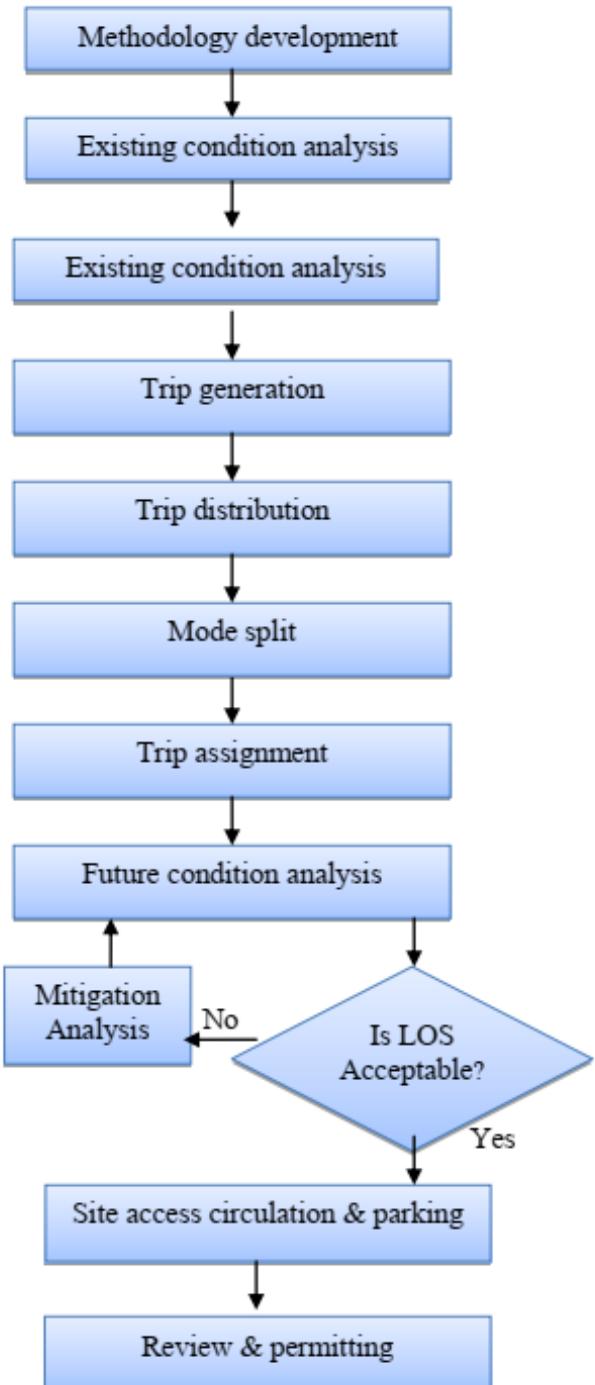


Figure 1 A basic framework for traffic impact analysis

Source: Faheem, 2012