



TRAFFIC IMPACT ANALYSIS GUIDELINES

Fort Bend County, Texas
Engineering Department

Fort Bend County (FBC) recognizes the need for Traffic Impact Analysis (TIA) studies to evaluate the interaction between proposed land development projects and adjacent roadway and transportation facilities. A TIA study examines measures to mitigate impacts from a proposed development and maximize the safety and efficiency of the adjacent transportation system. The following guidelines are provided to ensure that a submitted TIA study meets the necessary requirements for FBC Engineering staff to review and make decisions in a timely and efficient manner.

Requirements for TIA Submittal

The Fort Bend County Engineering Department uses the following criteria for requiring a TIA submittal and establishing a study area boundary around the development site. First, a TIA study needs to be submitted if the development is estimated to produce *5,000 or more vehicle trips per day* (daily rate based on Section 2.15 of the FBC Regulation of Subdivisions); or also *100 or more vehicle trips during the peak hour* from the site or adjacent roadways.

Second, the study area needs to be established and include both existing conditions from the adjacent transportation system and impacts from nearby developments. The study area can include impacts to the roadway / transportation facilities and adjacent developments that are within *1000-foot radius of the proposed site boundary*. Also since traffic flow and platoon conditions affect traffic signals, existing signalized intersections within *½-mile of the TIA site* can be analyzed for traffic signal synchronization.

Available Data Sources

A submitted TIA needs to utilize acceptable study methodologies and data sources in its analysis. Listed below are such standards that can be used (but not limited to) in the TIA study analysis. Fort Bend County Engineering also requires that a submitted TIA study conforms to platting requirements listed in *Fort Bend County's Regulations of Subdivisions* (located at fortbendcountygov.com and under the Engineering section).

- Transportation Impact Analyses for Site Development: An ITE Recommended Practice (RP-020D)
 - ITE (Institute of Transportation Engineers)
 - Provides general guidelines for the development and analysis of traffic impact studies and proposed recommendations
- Highway Capacity Manual: Year 2000, TRB Special Report 209
 - TRB (Transportation Research Board)
 - Provides the capacity and LOS (levels of service) analyses procedures for various roadway and transportation facilities
- ITE Trip Generation Handbook (currently 8th Edition)
 - Provides standardized trip generation rates and analyses for various land uses
- AASHTO's "Green Book" – A Policy on Geometric Design of Highways and Streets: Year 2004
 - AASHTO (American Association of State Highway and Transportation Officials)
 - Provides transportation design standards to be used in recommending mitigation measures

In addition, the Engineering Department utilizes the City of Houston, Texas' *Infrastructure Design Manual (IDM)* for our local roadway design standards. The TIA study will need to comply with the Houston IDM standards when designing roadway and other transportation mitigation measures.

General TIA Format

The structure of a TIA study will vary depending on the different sizes and types of development land uses. However, the Engineering Department recommends that a TIA study follow the general format shown below. The study can also provide appendices for collected data sets that include (but not limited to) directional traffic counts, peak hour turning movement counts, trip generation data sheets, and capacity analyses / simulation printouts.

A. Introduction

- Includes but not limited to descriptions of the proposed site development, associated land use, and access points. Also defines the adjacent roadway network and nearby developments, study area boundaries, data sources, and design standards.

B. Analysis / Background Traffic

- Describes the operational analyses used to determine the existing and future traffic conditions. Plus sets the background and horizon years for each phase and final site buildout.
- Provides the background traffic analyses (no-build scenarios) for existing and future conditions.

C. Trip Generation

- Determines the trip rates and analyses from the Trip Generation Handbook, similar data sources, or other local developments (with similar land use properties).
- Also need to consider trip reductions for *pass-by trips* (portion of background traffic that may temporarily divert to the site development).

D. Trip Distribution and Assignment

- Describes the distribution methodology and determines directional distribution percentages for trip assignment (build scenarios).

E. Capacity Analysis

- Describes the capacity and LOS analyses for the site access points, adjacent roadway network and affected intersections within the study area; expressed in terms of LOS and delay results for existing and forecasted conditions (with and without site development).

F. Recommendations

- Describes proposed mitigation measures that need to improve traffic conditions to either *LOS D or the level of service from the background (no-build) conditions*. For example, if forecasted background conditions demonstrate LOS E, then mitigation measures should also maintain traffic conditions to LOS E or better.

TIA Review and Other Information

Once completed, the TIA study must be submitted to the Engineering Department for staff review. The staff will conduct an initial review to see if the TIA study and recommendations are acceptable under Fort Bend County regulations. If the TIA study is not compliant, staff will respond in writing of the deficiencies to be addressed in the study. Once all comments are corrected, submit the final report as *2 original copies* that must be signed and sealed by a licensed Professional Engineer in the field of Civil Engineering.

For multiple phase developments, a TIA study can be submitted for just the interim phases. However once the multiple phase development reaches full buildout, if the conditions of the original TIA study changes substantially (where the generated traffic exceeds the interim phase traffic forecasts), then the TIA study needs to be updated and resubmitted with the full buildout analysis. TIA studies for site developments located within an *extra-territorial jurisdictional (ETJ) area* will need to be submitted to the respective city for possible compliance with their traffic impact study regulations. Also, a TIA study resubmittal can be requested at the discretion of the County Engineer, and failure to update and resubmit the TIA can result in the *rejection of additional development permits*.

TIA Study Checklist

The following checklist contains the minimum general requirements for TIA submittal and review by FBC Engineering staff. Therefore, this study checklist does not encompass all necessary items needed for each type of TIA study, and additional information can be requested by the FBC Engineering Department.

- At a minimum, are **5,000 vehicle trips per day** or **100 vehicle trips per peak hour** generated from the site development? Does the study area include roadway / transportation facilities and adjacent developments within a **1000-foot radius of the site boundary**? Are signalized intersections located within **½-mile of the site boundary** included in the study area?
- Does the TIA study utilize acceptable study methodologies and data sources in its analyses? Does the submitted study conform to the FBC Regulation of Subdivisions, and proposed mitigation measures meet current design criteria?
- Are background and horizon year analyses established for each phase of the site development and / or final site buildout? Does the study describe background traffic analyses for existing and future conditions?
- What credible sources does the TIA use for Trip Generation and the development of trip rates and analyses for the proposed site development? Are trip reductions from possible **pass-by trips** considered in the trip generation analyses?
- Does the capacity analysis provide LOS and delay results for existing and forecasted conditions (with and without site development)? Do the proposed mitigation measures improve traffic conditions to either **LOS D or the level of service from the background (no-build) conditions**? Use the following when background traffic conditions exceed LOS D.

Analysis Scenarios	LOS Conditions for Capacity Analyses		
Future Development (Build) Conditions	D or E or F	E or F	F
Future Background (No-Build) Conditions	D	E	F
Maximum LOS Conditions for Development with Mitigation Measures	D	E	F

- For the final TIA study submittal, are there two (2) original copies **signed and sealed by a licensed Professional Engineer** in the field of Civil Engineering? If the site development located in an **ETJ area**, has the study been submitted to the respective city for possible compliance with their TIA regulations?