

## **Chicago Department of Transportation (CDOT)**

### **Policies and Guidelines for Traffic Impact Studies (TIS) – 8/31/2021**

#### **1. INTRODUCTION**

The purpose of this document is to provide uniform guidelines for preparing and reviewing Traffic Impact Studies (TIS) for a new development or modification or expansion of an existing development. The main objective of a TIS is to document impacts of a development on the surrounding transportation system and recommend on-site and off-site improvements to mitigate those impacts.

This document provides the following guidance:

- Identifies when a TIS is required
- Provides TIS step-by-step procedures
- Establishes typical TIS format

#### **2. DEVELOPMENT CONDITIONS REQUIRING A TIS**

The following list contains typical thresholds that will trigger a need for TIS. The applicant is encouraged to reach out to CDOT to discuss the project and receive a determination whether a TIS is required. In some cases even if a full traffic impact study is not required, the department may request a traffic memo summarizing the development and qualitatively describing anticipated effects on one or more transportation elements impacted by the site.

- The site is projected to generate 100 or more trip ends during roadway system or development peak period.
- Engineering judgment determines the need for the study due to safety or capacity deficiencies within the roadway system near the site, even if the site would generate fewer trips than the 100 trips.
- The development requires modifications to transportation infrastructure to function safely and efficiently. Examples of these modifications may include but are not limited to new traffic signals, turn arrows, street closures, or changes to a street's direction of travel.
- A development (such as a school or daycare facility) will result in a significant volume of pick-up and drop-off activity within the public way.
- A TIS is requested by local elected officials.

#### **3. TIS STEP-BY-STEP PROCEDURES**

##### **3.1 TIS Scope of Study, Horizon Year and Site plan**

**Scope** - Prior to initiating a TIS, the applicant or applicant's representative should develop a scope for the study and include a map showing the boundaries of the study area. City staff will review the scope and provide comments. It is at the discretion of the City staff to modify and expand the study area or require additional information as deemed necessary.

**Horizon Year** - The TIS should be prepared for the opening year of the development. If the development has more than one phase, the TIS should include information regarding the proposed build out of the project including phasing plan, completion dates of all phases, and transportation infrastructure proposed as part of each phase. For a phased project, the applicant is encouraged to coordinate with CDOT to determine the structure of the Traffic Impact Study and the requirement for follow-up TIS submittals.

Site Plan - A fully dimensioned site plan should accompany the TIS and show the proposed development and parcels, internal circulation, on-site parking layout, private access roads, driveways, truck access and loading area, and connections to the public roadway system. The following list expands upon the information expected to be shown on a site plan.

- On-site parking (size of garage or surface lot, internal circulation and queuing space, valet or reserved parking, handicap parking, bicycle parking, etc.)
- Access/driveways (location and proximity to intersections, size/design per CDOT details, turn restrictions, audio/visual warning devices at garage exits, pedestrian access, stacking for drive-thru lanes, truck accommodations)
- Public way elements (right-of way and property lines, sidewalk and planter widths, street and alley widths, curb extension widths, pavement markings, ADA ramps, bus stop locations, and above ground utilities such as light poles and fire hydrants)
- Curb-side use (parking, valet, standing/loading zone, bus stop operations, staging, bike lanes, striping, corner clearance, parking restrictions). Some of these items will impact the local community, residents, and businesses. Changes may require aldermanic coordination and it is the developer's responsibility to coordinate with the community on the impacts.
- Loading docks (location, size, number per code, turning movement exhibits, ease of access from street/alley, potential for internal loading)
- Street direction (one-way/two-way conversions, etc.)

### **3.2 Existing Traffic Conditions**

New weekday peak hour traffic counts are needed for the study. The counts should be grouped in 15-minute intervals and should include passenger cars, trucks, buses, pedestrians and bicyclists. The nature of some developments, such as large retail centers or places of worship, may require additional counts over the weekend. The weekend counts and count hours will need to be coordinated between City staff and the developer.

- The traffic counts are normally conducted on an average weekday (Tuesday or Wednesday or Thursday) morning between 7AM and 9 AM and in the evening between 4PM and 6 PM. At times, based on the nature of a development, these hours may need to be extended.
- If an existing active use is present on the development site, counts are encouraged to be conducted at the site driveways.
- A weekday 12-hour-count (7 AM to 7 PM) is required for evaluating traffic signal warrants.
- Raw count data sheets must be added to the appendix

The existing counts for the roadway and study intersections should be presented in a graphic format in the report.

### **3.3 Background Traffic**

The traffic study must include a diagram that shows the volume of no-build traffic in the year the development is anticipated to be fully built out. The background traffic projections should include the following:

- Growth in existing traffic volumes. Vehicular traffic volumes can generally be assumed to increase by 0.5% per year. Pedestrian and bicycle volumes may be assumed to increase at 2% per year.

- Traffic contributed to the street system by developments near the site that are planned or under construction. Please contact CDOT to obtain a list of these developments and their traffic studies.
- Trips generated by the existing site on the development parcel may be subtracted from the existing traffic.

### **3.4 Trip Generation**

Trip generation uses the size of each facility and its intended use to determine the number of trips using the latest version of the Institute of Transportation Engineers (ITE) Trip Generation manual. Include a table showing each development type, ITE code, size, daily trips, and morning and evening peak trips.

Trip reduction may be allowed to account for people using other modes of transportation than driving; however, documentation such as census data is required to support the reduction. Pass-by trip reduction may also be accounted for in accordance with ITE recommended practices.

### **3.5 Directional Distribution**

This is the process of determining where site-generated traffic comes from and goes to within the street network. Many factors can contribute to trip distribution, including size and type of the development, and condition of the area street network. A diagram with projected trip distribution must be included in the TIS.

### **3.6 Trip Assignment**

This process takes total generated trips, access to exiting streets, and directional distribution to distribute trips to sites access point and intersections within the impact area. The internal circulation will impact distribution; therefore, the internal network must be finalized before assigning trips to the public street system. The trip assignment should be presented in a diagram format in the TIS.

### **3.7 Analysis**

Capacity analyses should be performed for the existing and proposed conditions for the study area at the intersections within the public way and at the site access intersections (signalized and unsignalized). If capacity improvements are proposed, the study should analyze the location with and without the improvement. The results should be shown in a table and should include performance measures such as Level of Service (LOS), delay, V/C, and queue lengths for each intersection movement or access point. The latest version of Synchro software should be used for the intersection, corridor and network analyses.

- Improvements should be recommended in order to maintain and/or improve existing levels of service.
- With the addition of site traffic, intersection and street network system must operate efficiently and with acceptable queue lengths.
- Signal warrant analysis should follow guidelines established in the latest version of the Manual on Traffic Control Devices (MUTCD).
- Queuing analyses from Synchro should be used to determine vehicle storage and turn lane lengths.

### **3.8 Mitigation Measures**

The TIS should clearly document and list all infrastructure improvements to lessen the impacts of all modes of transportation the development would have on the surrounding intersections and street network. Based on the review of the TIS, development impacts, and knowledge of City streets and intersections, City staff may require additional improvements not included in the TIS.

- The developer will be responsible for design, construction, and installation of infrastructure improvements.
- A Traffic Management Plan may be requested given the site's nature and complexity.
- Opportunities for infrastructure improvements may include but are not limited to the following: new traffic signals, pedestrian countdown signals, upgraded ADA ramps, curb extensions, pedestrian refuge islands, expanded sidewalk facilities, bike facility improvements, left-turn arrows, Leading Pedestrian Interval (LPI) phasing, corridor cross-section changes, resurfacing, pavement marking striping changes, concrete median installations, etc.

#### 4. TIS FORMAT

This section describes the format of a typical Traffic Impact Study submitted to the Chicago Department of Transportation. All developments are unique, thus the structure of the TIS may vary slightly to meet the needs of the project. Please contact CDOT if any major deviations from this format are planned.

- I. Executive Summary
- II. Table of Contents
- III. Introduction
  - A. Project Background
  - B. Purpose of Report and Study Objectives
- IV. Existing Conditions
  - A. Site Location Map
  - B. Description of Study Area
    - 1. Current on-site land use
    - 2. Surrounding land uses
    - 3. Planned nearby developments
  - C. Transportation System
    - 1. Roadway characteristics
    - 2. Public transportation service
    - 3. Pedestrian facilities
    - 4. Bicycle facilities
    - 5. Planned projects
  - D. Traffic Characteristics
    - 1. Peak hour turning movement counts
      - a. Intersections
      - b. Driveways serving existing use
    - 2. ADT where available (see IDOT website [www.gettingaroundillinois.com](http://www.gettingaroundillinois.com))
    - 3. Pedestrian counts
    - 4. Bicycle counts
- V. Proposed Development
  - A. Site Plan
  - B. Project Phasing and Estimated Time Schedule
  - C. Proposed Land Use(s) and Intensity
    - 1. Square footage and/or unit count
    - 2. Number of off-street vehicular and bicycle parking spaces
  - D. Site Access Locations
    - 1. Driveways
    - 2. Loading docks
    - 3. Pedestrian entrances
    - 4. Bike parking

## VI. Future Traffic

- A. Non-Site Traffic from Developments within Study Area
- B. Background Traffic Growth
- C. Site Traffic
  - 1. Trip generation rates and ITE Land Use Codes
  - 2. Modal split
  - 3. Trip distribution
  - 4. Traffic assignment
- D. Total Traffic

## VII. Traffic Analysis and Discussion

- A. Methodology and Level of Service Descriptions
- B. Existing and Future Capacity Analyses
- C. Existing and Future 95<sup>th</sup> Percentile Queues
- D. Traffic Signal and Left-Turn Arrow Warrants (for any proposed traffic signals or left turn arrows)
- E. Impacts to On-Street Parking
- F. Site Access
  - 1. Driveways
    - a. Operation and access restrictions
    - b. Sight distance
  - 2. Bicycle access
  - 3. Pedestrian access
  - 4. Access to transit
  - 5. On-street pick up and drop off operations
  - 6. Loading
    - a. Truck routes to and from site
    - b. Size and frequency of trucks anticipated
    - c. Schedule of deliveries

## VIII. Findings and Recommendations

- A. Roadway Modifications
- B. Traffic Control Device Improvements
- C. Bicycle Facility Improvements
- D. Pedestrian Facility Improvements
- E. Transit Improvements
- F. Travel Demand Management (TDM) Measures

## IX. Appendices

- A. Raw Traffic Count Data
- B. Existing Traffic Signal Timing Sheets
- C. Site Plan
- D. Census Tract Data
- E. Auto Turn Exhibits
- F. Synchro/SimTraffic Reports