**MoDOT Traffic Impact Study Report Template**

June 2020

The Missouri Department of Transportation (MoDOT) will require a Traffic Impact Study (TIS) report for all traffic impact studies. A TIS report is meant to summarize the procedure and findings of traffic impact studies and to recommend adjustments to the transportation network that will be needed to handle the traffic generated by the construction of new developments.

This template is meant to aid consultants and other parties submitting work to MoDOT in their production of TIS Reports. Written below are several guidelines which should be considered when using this template:

* *Do not delete any sections in the template*. Instead, if a section does not apply to a given project, write “N/A” and give a brief explanation for why that section does not apply.
* Blue text represents information which should be replaced with project specific information.
* Red text represents information which has been included in the template to better explain what each section of the report should include. This text should be deleted before submitting the report to MoDOT.
* Green text discusses content, usually figures, which MoDOT recommends including in certain sections of the report. MoDOT does not require any specific figures to be included in all reports because all studies are unique and require varying levels of visual aids, but writers should seriously consider these recommendations.
* Because each report will have a unique number of figures and tables, the List of Figures and List of Tables below the Table of Contents has been left for the writer of the report to format.
* Do not alter the format of the template before submitting to MoDOT.

*Title of Traffic Study*

Draft/Final/Revised Traffic Impact Study Report

Date of Completion

Prepared for:



 Missouri Department of Transportation

 105 W. Capitol Avenue

 Jefferson City, MO 65102

 Prepared by:

 Name of Firm

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A list of appendices may be included as necessary.

# Executive Summary

The purpose of this section is to provide a brief narrative that describes the development being assessed, the analysis process, and the results of the study. This section of the report should be concise yet thorough (generally one page or less), and it should include the following information:

* Location of the study
* Description of proposed development
* Principal findings
* Final recommendations and conclusions

Suggested figures: N/A

# Introduction

The purpose of the introduction section is to describe the purpose of the report and the objectives of the traffic impact study the report summarizes. Information relevant to the project background should be included in this section, as well as a brief description of the project location. A map of the project location may be included in this section, however, writers should keep in mind that detailed information related to the study area should be discussed in Chapter 3: Proposed Development.

Suggested figures: Aerial view of project location

# Proposed Development

This section should be devoted to describing the areas being studied and the proposed development for which traffic impacts are being evaluated.

Suggested figures: N/A

## Study Area

This section should be used to define the influence area and area of significant impacts related to the proposed development. The influence area describes the areas from which the development generates trips, while areas of significant impacts describe locations where the development will have direct impacts on traffic conditions. Detailed analysis should be completed for the area of significant impacts.

Suggested figures: map of influence area, map of areas of significant impact

## On-Site Development

This section should be used to describe the proposed development being studied and its proposed location. This is a chance for writers to expand upon what they have previously written about the proposed development and its location in Chapter 1: Introduction. This section should also provide details on the proposed land use type and intensity, the proposed site plan, and any plans for phasing or timing the construction of the development.

Suggested figures: map of proposed site location, proposed site plans, plans for site phasing (if applicable)

## Off-Site Land Uses

This section should be used to describe the different land uses which are adjacent to the proposed development’s location. Writers should take care to note land uses which play a significant impact on existing traffic conditions in the study area and how the designated land use of the proposed development relates to nearby land uses.

Suggested figures: map of study area with land uses adjacent to proposed development clearly labeled

## Site Accessibility

This section should be used to describe existing and proposed site accessibility. This includes a thorough description of the transportation network surrounding the site which should address existing roadways, adjacent driveways, frontage roads, private roads, sidewalks, bike accommodations, and transit routes and facilities in the study area. This narrative should also cover traffic control operation near the site.

Suggested figured: map of study area with points of access clearly labeled

Writers should note that at this point the report likely includes at least one map of the study area, if not several maps. In the interest of conciseness, writers may choose to label one map with several features. In this case, a map is not required for each section of this report. However, the content discussed in each section of this chapter should be represented on at least one map.

# Existing Conditions

This chapter should be used to discuss existing site conditions and traffic volumes. The following sections are instrumental in providing a base case against which the projected traffic conditions can be compared.

Suggested figures: N/A

## Physical Characteristics

This section should be used to discuss the physical characteristics of the existing site, including roadway geometry and multimodal facilities. If there are any planned changes to roadway or traffic control in the area, these plans should be discussed as well.

Suggested figures: imagery and/or aerial views of relevant site characteristics, plans showing future improvements (if applicable)

## Data Sources

This section should be used to report all sources of traffic data used to conduct the analysis of existing site conditions. These sources may include, but are not limited to, turning movement counts, average daily traffic, traffic forecasts, existing signal timings, and crash data. This section is also expected to include a description of the type and age of all data used for the analysis.

Suggested figures: tables summarizing the data used

## Traffic Volumes

This section should be used to detail existing traffic volumes, paying special attention to conditions during peak hours. The morning, afternoon, and weekend peaks should be considered at a minimum, but if a site has additional critical hours that are specific to its location, these should be included as well. This section should specify the average annual daily traffic (AADT) or annual average weekday daily traffic (AAWDT) for key roadway segments, as well as specific peak turning movement volumes. This narrative should take care to address current turning movement volumes at intersections within the area of significant impacts.

Suggested figures: map of transportation network within study area including traffic volumes

## Level of Service

The purpose of this section should be to evaluate the level of service (LOS) at which the existing transportation network operates. In addition to evaluating LOS for passenger cars, analysts should also consider evaluating LOS for other modes that access the existing site. This section should explain the software program(s) used to evaluate LOS, and it should provide output from any software analyses.

Suggested figures: tables communicating LOS and/or screenshots of software output.

Writers should note that including software output as an appendix and then referring to that appendix in the main body of the report is acceptable and in many cases is recommended, especially if there is a sizeable amount of output relevant to the report.

Table 1: Capacity Analysis Results for Study Area Intersections

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Intersections/Movements** | **LOS** | **Average Vehicular Delay (sec/veh)** | **95th% Queue Length (ft)** | **Existing Storage (ft)** |
| **AM** | **Noon** | **PM** | **AM** | **Noon** | **PM** | **AM** | **Noon** | **PM** |
| Pine Street and Maple Street | N/A | N/A | N/A | N/A | N/A | N/A |  |  |  |  |
| EB LT-THRU-RT | C | B | D | 31.0 | 12.6 | 26.4 | 75 | 25 | 50 |  |
| WB LT-THRU-RT | B | A | C | 17.0 | 12.9 | 19.8 | 25 | 25 | 25 |  |
| NB LT | A | A | A | 8.8 | 8.0 | 8.8 | 25 | 25 | 25 | 100 |
| SB LT | C | B | C | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 100 |
| Oak Street and Cedar Street | C | C | C | 27.6 | 20.9 | 31.0 |  |  |  |  |
| WB THRU | B | A | A | 15.9 | 7.2 | 7.1 | 700 | 250 | 200 |  |
| WB RT | A | A | A | 0.2 | 0.2 | 0.3 | 0 | 0 | 0 | 600 |
| SB RT | F | F | F | 82.5 | 107 | 157 | 375 | 275 | 475 | 325 |

A table like the one above can be used to communicate LOS results for many different time periods (i.e. base year, horizon years) and versions of the transportation network (i.e. existing network, alternative improvements). Tables with similar formats can be used throughout this report for various purposes.

# Projected Traffic

The purpose of this chapter is to evaluate how much traffic the proposed development will generate after construction and the resulting traffic volumes in the study area. The results of this analysis will ultimately be compared to the results of the existing conditions analysis to judge the extent to which the proposed development will impact existing traffic conditions.

Suggested figures: N/A

## Background (Future No-Build) Forecasting

The purpose of this section is to evaluate the traffic volumes that will be on the transportation network in a horizon, or future, year without the construction of the proposed development. In some cases, background forecasting may be requested for multiple horizon years. This section should include a description of how these traffic projections were generated and cite any traffic forecasts used as references.

Suggested figures: table(s) communicating forecasted traffic volumes

## Existing Build Forecasting

The purpose of this section is to evaluate how much traffic would be on the transportation network assuming the proposed development fully opened tomorrow. This section and the following subsections are meant to walk through the analysts’ process for developing the traffic projections for the development.

Suggested figures: N/A

### Trip Generation

The purpose of this chapter is to describe how trips for the proposed development were determined. If analysts used the *ITE Trip Generation Manual* to do this, then this section should include a thorough description of which trip generation tables were used and how those tables were used to estimate trips (i.e. using a weighted average rate or fitted curve equation). If analysts had to collect local data to estimate trips, the data collection process and findings should be detailed in this section.

Suggested figures: map of data collection locations (if applicable), table communicating estimated trips per each land use code evaluated

### Adjustments to Trip Generation Rates

The purpose of this section is to discuss how trip generation estimates were adjusted. Any adjustments for internal capture or pass-by trips as outlined in the *ITE Trip Generation Manual* should be discussed here. Other adjustments, such as modal split, should also be documented. If the site in question has limited connectivity to nearby generators of pedestrian, bicycle, or transit trips, then adjusting trip generation estimates for modal split might not be necessary. If this is the case, this narrative should be used to justify why modal split was not carried out.

Suggested figures: N/A

### Trip Distribution

This section should be used to explain the method (i.e. gravity model, origin-destination, etc.) and procedure used to determine trip distribution. This narrative should provide a thorough explanation of all reasoning used and assumptions made to distribute trips within the study area. Trip distribution may vary by travel mode.

Suggested figures: map showing proportion of trips on segments of the transportation network

### Trip Assignment

This section should be used to explain the method and procedure used to conduct trip assignment. This narrative should discuss how factors such as driver tendencies and characteristics, internal circulation design, available roadway capacities, etc. influenced the trip assignment process.

Suggested figures: map showing estimate of development trips and of total traffic volume on transportation network

## Future Build Forecasting

The purpose of this section is to evaluate how much traffic will be on the transportation network in a future horizon year assuming the proposed development has been constructed. This is accomplished by adding the development trips (from Chapter 5.2) to the future background traffic volumes (from Chapter 5.1)

Suggested figures: N/A

# Analysis of Traffic and Improvements

This chapter should focus on using the projected traffic counts presented in the previous chapter to evaluate future traffic conditions. If future traffic conditions suggest that improvements to the transportation network will be necessary, this chapter is also meant to compare alternative improvements.

Suggested figures: N/A

## Site Access Performance

This section should identify all proposed access driveways to the site of the proposed development. This narrative should also analyze each access with respect to traffic operations, safety, and location relative to other nearby access points. Assessments of safety should be sure to include consideration for bicycle and pedestrian safety in addition to vehicle safety.

Suggested figures: map showing access points to proposed development and nearby access points and/or bicycle and pedestrian conflicts

## Capacity and Level of Service Analysis

Similar to Chapter 4.4 of this report template, the purpose of this section is to evaluate the LOS at which the current transportation network would operate under forecasted traffic volumes with and without the proposed development. The idea is for readers of this report to compare these LOS results to each other and to the LOS results presented in Chapter 4.3 to judge how the proposed development will influence traffic conditions.

Suggested figures: N/A

### Background (Future No-Build)

The purpose of this section is to evaluate the LOS at which the current transportation network would operate under the forecasted background traffic volumes generated in Chapter 5.1. This analysis provides a baseline for traffic conditions during the horizon year assuming the proposed development has not been constructed.

Suggested figures: software output (may be included as an appendix)

### Existing Build

The purpose of this section is to evaluate the LOS at which the current transportation network would operate under the existing build traffic volumes generated in Chapter 5.2. This analysis evaluates how the traffic generated by the proposed development would influence traffic operations without considering how existing traffic volumes may increase over time.

Suggested figures: software output (may be included as an appendix)

### Future Build

The purpose of this section is to evaluate the LOS at which the current transportation network would operate under the combined background and build traffic volumes generated in Chapter 5.3. This analysis gives an overall prediction of the combined effect that increasing traffic volumes and traffic generated by the proposed development will influence traffic operations.

Suggested figures: software output (may be included as an appendix)

## Proposed Improvements

Similar to the previous chapter, this chapter should focus on analyzing how forecasted traffic volumes will impact the transportation network. However, this chapter is meant to evaluate how improvements to the existing transportation network may improve upon the LOS results presented in the previous chapter. Before explaining the results of the LOS analyses, this section should be used to describe the alternative improvements being considered.

Suggested figures: plans or figures relevant to the alternative improvements being considered

### Background (Future No-Build) with Improvements

The purpose of this section is to evaluate the LOS at which an improved transportation network would operate given forecasted background traffic volumes. If there are several alternative improvements being considered, this section should be used to discuss the analysis of LOS for each alternative improvement.

Suggested figures: table(s) communicating the predicted LOS of each design alternative, software output (may be included as an appendix)

### Existing Build with Improvements

The purpose of this section is to evaluate the LOS at which an improved transportation network would operate with the additional traffic volumes generated by the proposed development. Again, if there are several alternative improvements being considered, this section should be used to discuss the analysis of LOS for each alternative improvement.

Suggested figures: table(s) communicating the predicted LOS of each design alternative, software output (may be included as an appendix)

### Future Build with Improvements

The purpose of this section is to evaluate the LOS at which an improved transportation network would operate given the combined traffic volumes from background forecasting and build forecasting. Again, if there are several alternative improvements being considered, this section should be used to discuss the analysis of LOS for each alternative improvement.

Suggested figures: table(s) communicating the predicted LOS of each design alternative, software output (may be included as an appendix)

## Improvements

This section should be used to compare the predicted LOS results for the existing transportation network and for the transportation network including one or more improvements. If several alternative improvements were analyzed, the LOS results for each alternative should be compared in a narrative form.

Suggested figures: table(s) comparing LOS results for different alternative improvements

# Recommendations and Conclusion

This chapter should be used to summarize the purpose and primary findings of the traffic impact study. This chapter should also discuss whether or not the traffic volumes generated by the proposed development warrant improvements to the existing transportation network. If improvements are found to be necessary, then this chapter should use the results of the LOS analyses carried out in Chapter 6 to justify which alternative improvement has the greatest potential for improving traffic conditions in the areas surrounding the proposed development.

Suggested figures: N/A