

Appendix K. Traffic Engineering Report

K.1 Traffic Engineering Report - General

The Manual on Uniform Traffic Control Devices (MUTCD) requires a traffic engineering study to determine if a traffic control signal is justified. The factors to be considered in the study are not specified. However, the MUTCD indicates that the study should include the factors contained in the warrants and those related to the operation and safety of the location in question and it suggests several items that may be included.

The number of vehicles entering the intersection in each hour from each approach during the 12 consecutive hours of an average day that contain the greatest percentage of the 24-hour traffic:

- Vehicular volumes for each traffic movement from each approach, classified by type of vehicle (heavy trucks, passenger cars and light trucks, public-transit vehicles, and, in some locations, bicycles), during each 15-min period of the 2 hours in the morning, 2 hours at midday, and 2 hours in the afternoon during which total traffic entering the intersection is greatest.
- Pedestrian volume counts on each crosswalk during the same periods as the vehicular counts just described, and also during hours of highest pedestrian volume (where young or elderly persons need special consideration, the pedestrians may be age-classified by general observation).
- Existing conditions diagram.
- Location map.
- The posted or statutory speed limit or the 85th-percentile speed on the uncontrolled approaches to the location.
- An existing condition diagram based on field observations showing details of the physical layout, including such features as adjacent intersections, highway geometrics, traffic control, grades, channelization, sight-distance restrictions, bus stops and routings, parking conditions, pavement markings, street lighting, driveways (curb cuts), nearby railroad crossings, distance to nearest signals, utility poles, and fixtures, delays, and adjacent land use.
- A collision diagram showing accident experience by type, location, direction of movement, severity, time of day, and day of week for at least one year.
- Traffic signal warrant analysis.
- Capacity Analysis and evaluation of turn lane necessity.
- Proposed Improvements diagram.
- Intersections at nearby railroad crossings should be analyzed for railroad signal preemption requirements and pre-signal needs.
- Conceptual signal design (if warranted).
- Recommendations and Conclusions.

Additional data may be useful in evaluating the potential improvements in the overall operation and safety of the intersection. These include vehicle-seconds of delay by approach, the number and

distribution of gaps on the major street, and pedestrian delay time. Analysis of these data may show that, although warranted by vehicular volumes alone, a traffic signal may not be justified.

If the study data shows little or no delay, relatively few correctable collisions, and adequate gaps for side-street traffic to enter, and do not indicate any potential improvement with a traffic control signal, the signal should not be considered for installation.

K.2 Traffic Engineering Templates

Traffic Engineering Report and cover letter templates can be found on the following pages.

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**
INTEROFFICE CORRESPONDENCE

FILE *P.I. Number*
Project Number
County
Project Description

OFFICE *District Office*

DATE

FROM *District Traffic Engineer*

TO *State Traffic Engineer*

SUBJECT **Traffic Signal Permit Request**

State Route Number _____
Intersection of _____ and _____
MP _____, _____ County

Attached is a traffic signal engineering report as requested by the City of _____, _____ County, for the placement of a traffic signal at the subject intersection.

Based on the attached information, it is recommended that the Department issue a signal permit to _____ County for the installation of a traffic signal at the subject intersection.

Also attached are a signed permit application, signal design and a location map. If you have any questions, please call me at (____) ____-____.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

TRAFFIC ENGINEERING REPORT

For the intersection (or intersections) of: (describe all)
STATE ROUTE _____ AND _____ (Street, Avenue, Blvd., etc.)
In the City of _____, (if applicable)
County of _____
At Mile Post _____.

Provide a simple location sketch for the intersection.

Report prepared by:

Name

Title

Address

Telephone Number: (Area Code) Telephone Number

E-mail Address: [Name] @dot.ga.gov

FAX Number: (Area Code) FAX Number

Date report prepared: _____

Location: Describe in the location detail using the cover sheet (page 1) description as the basis of the narrative.

Reason for the investigation:

_____ County has officially requested GDOT consider the placement of a stop-and-go traffic signal at this location. This corridor has experienced tremendous growth over the last 20 years with many commercial and residential establishments.

Description of the intersection: Include the proper name and route designations of all intersection legs, describe the typical section of all legs, give the major origin and destination of each leg, describe street lighting, note any history or architecture (context) that should be considered, describe any controlling criteria not meeting present guidelines, note the presence or proximity of railroads, railroad grade crossing, and describe the terrain.

- State Route 000 is a five lane section including a center turn lane. There are three thru lanes westbound and eastbound at the intersection with City Street X, the intersecting street. City Street X intersects SR000 at the bottom of a sag vertical curve. SR000 is a heavily traveled major arterial that connects City A and Town B.
- Intersecting Street is a two lane roadway that serves a relatively small townhouse complex.

Traffic volumes in vehicles per day (vpd): (Use a minimum of three years)

Latest year percent trucks:

Latest year 24 hour percent trucks:

Year	SR __ @ MP ____ Count Station????? (vpd)	Intersecting Street Name (vpd)
Latest year	(Volume)	(Volume)
Latest year -1	(Volume)	(Volume)
Latest year -2	(Volume)	(Volume)
Latest year -3	(Volume)	(Volume)
Latest year -4	(Volume)	(Volume)

Morning and evening peak hour turning movement counts are attached.

EXISTING TRAFFIC CONTROL: (Fully describe the existing traffic control for each leg of the intersection)

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State Route _____ and _____

Date _____

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- State Route
- Intersecting street

Vehicular speeds: (Give the posted speed limit on each approach leg. *The posted speed limit on SR000 is 45 MPH. However, this stretch of SR000 experiences observed speeds well over 50 MPH*)

- State Route.
- Intersecting street.

Pedestrian movements: (Describe all pedestrian movements including the presence or absence of sidewalks)

- The north side of SR000 is undeveloped at this time and there are no sidewalks along SR000.
- Although City Street A services a townhouse complex, no pedestrians were observed and none are anticipated. There are no sidewalks present.

Other modes of transportation present: (bicycle facilities, transit, bus stops, etc.)

Delay:

Observation during peak traffic periods revealed motorists on the side street experienced a minimal delay. However, adequate gaps were created by adjacent signals on SR000.

Parking:

There was no parking observed or expected at the intersection.

Accident History:

Year	Accidents							Injury	Fatal
	Rear-end	Side-swipe	Angle	Head-on	Struck Object	Run off Road	Total		

Accident printouts are attached. Also included are collision diagrams. *It appears that only two of the accidents from xxxx to xxxx were preventable by signalization.*

Adjacent Signalized Intersections:

There is a signal located at the intersection of SR _____ @ _____ Road _____ feet west of the subject intersection. There is a signal located at the intersection of SR _____ @ _____ Road _____ feet east of the subject intersection.

Warrant Analysis:

Traffic Engineering Report

State Route _____ and _____

Date _____

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XXX County performed a warrant analysis on this intersection. The intersection meets signal warrants _____ and _____ including right turns and meets warrants _____ and _____ without right turns on _____ side street.

Roundabout:

As per GDOT Policy 4A-2, the intersection of SR_____ at City Street _ has been analyzed to determine if a roundabout will perform acceptably. The analysis indicated....

Recommendations:

It is recommended that a signal permit be issued to XXX County for the installation of a traffic signal at the intersection of SR000 @ City Street A. It is recommended that the County purchase all needed equipment for the installation. XXX County will install and maintain the signal. (if applicable).

Recommend: _____
District Traffic Engineer Date

Recommend: _____
State Traffic Engineer Date

Approve: _____
Director of Operations Date

Traffic Engineering Report Appendix

- Sketch of the present intersection.
- Sketch of the proposed intersection.
- Traffic Signal Warrants Analysis - PC Warrants.
- Traffic Count Summary Sheets.
- Accident Diagram.
- Collision Diagram

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