Texas Department of Transportation

Technical Provisions

Book 2

Attachment 16-1

Vehicle and Pedestrian Counts Procedure

Section 5
Vehicle and Pedestrian Traffic Counts

Introduction

Up-to-date traffic and pedestrian volume counts reflect the characteristics of traffic. These volume counts, when compared to the established warrants, help determine the appropriate type of traffic control device, if any.

Types of Counts

A volume count analysis may use the following types of counts:

- vehicle counts at existing locations
- estimated counts at locations under construction and projected counts for future locations
- pedestrian counts
- school pedestrian counts.

Discussions of each of these types of counts follow.

Volume counts should be shown on the Traffic Survey Count Analysis Sheet (discussed in Section 7 of this chapter) for review in the office following the field work.

Vehicle Counts at Existing Locations

A vehicle count at an existing location should include the number of vehicles entering the location on each approach. Counts are recorded as vehicles cross the stop bar and enter the intersection. Tallies should be recorded for each quarter hour for the duration of the count. Ideally, counts are conducted on a "representative day" (defined later). The duration of the count should be 16 consecutive hours. This time span should contain the greatest percentage of traffic during the 24-hour time period. Traffic patterns, such as when the highest vehicle and pedestrian volumes occur, should help determine the beginning and ending times for the count. These patterns may vary from one location to the next.

Representative Day. A representative day is normally an average, mid-week day, such as Tuesday, Wednesday, or Thursday. Monday or Friday may be acceptable if traffic volumes are representative of a mid-week day. Local knowledge of commercial habits, such as early closings or evening shopping, is essential in choosing a truly representative day. Under unusual conditions when recreational traffic is significant, traffic counts taken on weekends may be compared against the accepted warrants.

Counting Techniques

With passenger or commercial vehicles, manual turning movement counts are always preferable, as they provide both the basic data for justification as well as detailed guidance for design. When 16-hour, machine-recorded traffic counts are used for traffic signal studies, they should be supplemented with manual counts for two hours of the morning peak and two hours of the afternoon peak periods.

Recording Manual Counts

Manual traffic counts may be recorded on either the Vehicle Volume Summary Sheet or the Vehicle Volume Field Sheet. Samples of both these forms are provided in Appendix A of the hard copy print version of this manual. These sample forms may be photocopied as necessary. Copies may also be obtained from the Traffic Operations Division (TRF). In the on-line version of this manual, an MS Word version of the Vehicle Volume Summary Sheet may be opened and printed out by clicking on either of the following file name:

- TFF-VVS (for 4-way intersections)
- TFF-VVS5 (for 5-way intersections).

Estimated and Projected Counts

For locations under construction or not yet in existence, the Transportation Planning and Programming Division (TPP) estimates the anticipated average daily traffic (ADT) volumes at the districts' request. To aid TPP in making such an estimate, 24-hour machine counts should be made along each approach open to traffic. An up-to-date map of the area and a layout of the location as it will be constructed should also be provided. (If construction will be staged and the location opened to traffic in increments, layouts at various stages of construction are recommended.) If a major traffic generator (shopping center, industrial plant, recreational facility, school, etc.) is in operation (or expected) within a 0.8 km (0.5 mile) radius of the location, the information should be included in the request to TPP.

Using the projected ADT volumes, the following general guidelines can be used to obtain an estimate of vehicle count data:

The maximum 8-hour volume is generally between 50 percent and 60 percent of the ADT, with the average being approximately 52 percent. In an urban area with a high ADT, the percentage is generally between 55 and 60 percent.

The average hourly volume of the maximum 8-hour volume is generally between 6 percent and 8 percent of the ADT (maximum 8-hour volume divided by eight.)

The lowest hourly volume (eighth highest hour) of the maximum 8-hour volume is generally between 5 percent and 6 percent of the ADT with an average value of approximately 5.5 percent. It is also approximately 80 percent of the average hourly volume or 10 percent of the maximum 8-hour volume. This value is the basis for comparing the anticipated volumes with the volume warrants for signalization found in the *Texas Manual on Uniform Traffic Control Devices.*

The lowest hourly volume (eighth highest hour) for a "grid system" of existing signals within a city is assumed to be 5.0 percent of the ADT.

The peak hour volume (highest hour) is generally between 6 percent and 10 percent of the ADT. The lower values are generally found on roadways with low volumes. The average value is approximately 8.4 percent of the ADT.

Pedestrian Counts

Pedestrian volume counts for each cross walk should be made during the same period as the vehicle volume count. Tallies should be recorded for each quarter hour for the duration of the count.

Pedestrian counts are not required in sparsely settled rural areas or at other locations where it is apparent that pedestrian movement is negligible. The signal installation must comply with the latest version of the Americans with Disabilities Act and the Texas accessibility standards.

Forms. The Pedestrian Volume Field Sheet and the Pedestrian Volume Summary Sheet can be used to record pedestrian counts in the field. Samples of these forms are provided in Appendix A of the hard copy print version of this manual. These sample forms may be photocopied as necessary. Copies may also be obtained from the Traffic Operations Division (TRF). In the on-line version of this manual, an MS Word version of the Pedestrian Volume Summary Sheet may be opened and printed out by clicking on either of the following file names:

- TFF-PVS (for 4-way intersections)
- TFF-PVS5 (for 5-way intersections).

Count Data Handling. The pedestrian count data can be input with the vehicular volume counts into the mainframe Intersection Traffic and Pedestrian Count Analysis Program discussed in Section 7 of this chapter.

NOTE: As of this writing, Revision 5 to the *Texas Manual on Uniform Traffic Control Devices (TMUTCD)* has not been incorporated into the program.

School Pedestrian Counts

School pedestrian counts should be made on a normal school day during the hours of greatest crossing activity. Obtaining the necessary count information for a school crossing study involves:

- counting the number of vehicles
- determining the length and spacing of gaps in the traffic stream
- measuring the width of the street
- counting the number of pedestrians crossing the street during each gap in the traffic stream.

Other factors to be considered at the crossing are:

- the 85th percentile speed
- crash history
- existing pavement markings, signing and channelization
- the age of school children.

Forms. The necessary forms with instructions for conducting a school pedestrian count are:

- Pedestrian Group Size Study
- Pedestrian Delay Time Study.

Samples of these forms are provided in Appendix A of the hard copy print version of this manual. These sample forms may be photocopied as necessary. Copies may also be obtained from the Traffic Operations Division (TRF). In the on-line version of this manual, an MS Word version of these form may be opened and printed out by clicking on the following file name: TFF-PGD.

For procedures for Determination of Need for Traffic Control at School Crossings, see Appendix B of this manual.