

Part 1 : MaineDOT Guidelines for Collecting Traffic Turning Movement Data for All Planning and Design Studies/Projects

Introduction

The accurate collection of transportation data, from trucks to passenger vehicles, bicycles and pedestrians, is critical to the successful outcome of any transportation plan, feasibility study, or project, including those projects seeking traffic movement permits from the Maine Department of Transportation (MaineDOT). This document provides the necessary guidance to provide the required level of data collection effort as determined by MaineDOT to be needed for adequate outcomes for permitting and design of transportation infrastructure.

Any data collection program will be managed by a Project Engineer familiar with these guidelines. If the needs for data collection, either through scheduling or site-specific reasons, vary from these guidelines, the Project Engineer must submit a written request for an exception from these guidelines to MaineDOT for consideration and prior approval. This approval will only be granted from the State Traffic Engineer or his/her designee. The State Traffic Engineer may consult Bureau of Planning staff before responding to the exception request. The exception request by the Project Engineer must demonstrate sound engineering judgment.

Guidelines

As with all data collection efforts, consultation with the MaineDOT Region Traffic Engineer (RTE)/delegated review engineer or his/her designee is strongly recommended prior to developing data collection plan. This being said, the following guidelines are recommended for transportation data collection:

A. Counting Season

Traffic data collection may be limited to the seasonal time periods in the following table. The time period determination is established based upon seasonal group classification of the “major” street/roadway in the project/study area. The range of dates is established based upon MaineDOT’s Weekly Group Mean Factors for the designated roadway types. The intent of these seasonal time periods is to ensure reliable data requiring a minimum of seasonal adjustment to estimate Annual Average Daily Traffic and Design Hour Volumes. In future revisions of the guidelines, these date ranges may be subject to adjustment, as necessary, based on future analyses of seasonal traffic patterns.

Counting Seasons for Factor Groups

Factor Group	From the week of	To the week of
I, I+II	April 1	November 15
II, I+III	June 15	September 15
II+III	June 24	August 31
III	June 24	August 24

Special Cases:
















- Locations influenced by both private and public school facilities will be counted during appropriate times in the spring or fall of the year. In the spring, the appropriate times would typically range from the week of April 1 to the week of April 30th for colleges and from the week of April 1 to the week of June 7 for primary and secondary schools. In the fall, the appropriate times would typically range from the week of September 15 to the week of November 15 in the fall for all schools.
- In locations where peak travel is driven by winter sports, the appropriate time of year for counting would typically be in December, January, February, or March.

B: Counting Days

Traffic data will be collected on weekdays, between Sunday midnight and Friday noon. Traffic data will not be collected on government-observed holidays or on the weekdays immediately preceding or immediately following these holidays.

C: Turning Movement Counts

Counts of all turning movements at an intersection will be collected for a 12-hour period covering the daytime hours between 6 a.m. to 6 p.m. or 7 a.m. to 7 p.m. in 15-minute time bins. The 12-hour counts may be collected in two consecutive weekdays in which the p.m. counts are collected on the first weekday and the a.m. counts are collected on the second weekday. Every turning movement count will be collected for three vehicle types: passenger vehicles (FHWA Classes 1 through 3), single-unit heavy vehicles (Classes 4 through 7), and combination heavy vehicles (Classes 8 through 13). These 13 FHWA classes are illustrated in the following figure. The 12-hour turning movement count in three vehicle types ensures that adequate information is available for DHVs, signal warrant analysis, design vehicles, and pavement design.

FHWA Vehicle Classifications				
1. Motorcycles 2 axles, 2 or 3 tires 	2. Passenger Cars 2 axles, can have 1- or 2-axle trailers 	3. Pickups, Panels, Vans 2 axles, 4-tire single units Can have 1 or 2 axle trailers 	4. Buses 2 or 3 axles, full length 	
5. Single Unit 2-Axle Trucks 2 axles, 6 tires (dual rear tires), single-unit 		6. Single Unit 3-Axle Trucks 3 axles, single unit 	7. Single Unit 4 or More-Axle Trucks 4 or more axles, single unit 	8. Single Trailer 3- or 4-Axle Trucks 3 or 4 axles, single trailer 
9. Single Trailer 5-Axle Trucks 5 axles, single trailer 		10. Single Trailer 6 or More-Axle Trucks 6 or more axles, single trailer 		
11. Multi-Trailer 5 or Less-Axle Trucks 5 or less axles, multiple trailers 		12. Multi-Trailer 6-Axle Trucks 6 axles, multiple trailers 		
13. Multi-Trailer 7 or More-Axle Trucks 7 or more axles, multiple trailers 				

Pedestrians and bicycles will be counted concurrently with turning movement counts. Pedestrians crossing each leg of an intersection will be counted. Bicycles using sidewalks and crosswalks may be counted as pedestrians. Bicycles using the roadway may be counted as passenger vehicles. Data collection efforts in which bicycle use is an area of focus may require that bicycles be counted separately.

Exceptions for turning movements:

In data collection efforts in which more than one intersection will have turning movement counts, MaineDOT may grant exceptions on the scope and duration of turning movement counts. These exceptions may be considered after MaineDOT receives an exemption request from the Project Engineer.

- Where two or more intersections are in close proximity on the “major” street/roadway in the project/study area, some intersections may be designated for collection of “ins and outs” movements only, to and from the “minor” street/roadway. At least one of the intersections must remain designated for full turning movements.
- Where two or more intersections are in close proximity on the “major” street/roadway, some intersections may be designated for collection of “peak period” hours only. Such intersections may be counted for a.m., p.m., and mid-day peak periods of two or three hours, as appropriate. Full 12-hour turning movements would remain required for at least one intersection and for intersections where a traffic signal warrant analysis may be anticipated.

In support of turning movement counts, 24-hour machine counts (such as those from road tubes) will be collected concurrently on each of the intersection legs. The tube counts are used for verification of turning movement count volumes to MaineDOT's precision standard (+/- 10%). Directional machine counts are preferred but not required. The reporting of turning movement counts and machine counts will meet the format standards specified by *MaineDOT Guidelines for Collecting Turning Movement Data, Revised 8/1/2014* and *MaineDOT Guidelines for Collecting Portable Counts, Revised 8/1/2014*. (See attached.)

Part 2: MaineDOT Guidelines for Collecting Traffic Turning Movement Data for All Traffic Movement Permit Applications

Introduction

The accurate collection of transportation data, from vehicles to bicycles and pedestrians, is critical to the successful outcome of any transportation plan, including those projects seeking traffic movement permits from the Maine Department of Transportation (MaineDOT). This document provides the necessary guidance to provide the required level of data collection effort as determined by the Department to be needed for adequate outcomes for permitting.

Any data collection program will be managed by a Project Engineer familiar with these guidelines. If the needs for data collection, either through scheduling or site-specific reasons, vary from these guidelines, MaineDOT will only grant exception status to these requirements via prior approval from the State Traffic Engineer or their designee. Any request for variation must be clearly stated in writing from the Project Engineer, who must demonstrate sound engineering judgment, and as described later in this document.

Guidelines

As with all data collection efforts, it is strongly recommended that the collection program be discussed with the MaineDOT Region Traffic Engineer (RTE)/delegated review engineer or their designee prior to data collection. This being said, the following guidelines are recommended for transportation data collection:

A. 1: Traffic Turning Movement Data collection may be limited to the following seasonal time periods; time period determination is established based upon the “major” street roadway classification of the project study area. The range of dates is established based upon MaineDOT’s Weekly Group Mean Factors for the designated roadway types. These date ranges are provisional at this time. It is anticipated that MaineITE will continue to work with MaineDOT to develop peak hour adjustment factors, rather than the weekly group mean factors. Upon further refinement or development of factors, these dates will be re-evaluated.

1. Group I Roadways – April 1st through November 15th.
2. Group II Roadways – June 15th through September 15th
3. Group III Roadways – June 24th through August 24th, with one exception:
j; no data will be collected during week of July 4th
4. Group I+II Roadways – April 1st through November 15th
5. Group I+III – June 15th through September 15th.
6. Group II+III Roadways – June 24th through August 31st

6. For locations that are not identified as a specific roadway group, prior coordination with the MaineDOT RTE/delegated review engineer or designee is required.

A.2: Traffic counts will not be collected on a holiday week (unless previously agreed to with the RTE/delegated review engineer), as well as the Friday before and Tuesday after a Monday holiday. The counts should be completed so that the period of collection adequately covers the peak hours of vehicular traffic. If NOT for a traffic signal warrant, the data collection shall be two hours covering the AM, PM, and/or Mid-day peak, as appropriate for the use/location. If the data collected is to be used for a traffic signal warrant, the time period MUST be a 12-hour count.

A.3: Intersections influenced by both private and public school facilities will be counted during appropriate times of the year.

B.1: This section outlining procedures to collect data is for a 12-month trial period. The State Traffic Engineer has the option to change any of this section at the end of the 12 months. In order to provide some level of confirmation to the accuracy of the turning movement count, the Traffic Turning Movement Data shall be collected at all Study Area intersections utilizing one of the following procedures:

1. Each study area intersection will be counted twice (full duration time period) during two consecutive weeks; the higher overall total entering volume data will be used for all analysis.
2. Each study area intersection will be counted once utilizing an approved video camera recorder, such as Miovision or similar.
3. Each study area intersection will be counted once accompanied by a concurrent 24-hour ATR machine count conducted directionally on the major street of the Study Area intersection. (Machine counts must be within 10% of the manual turning movement count.)
4. Historical data obtained from other sources that were appropriately collected consistent with these guidelines; data must be three years old or less. Older data may be used on a case by case basis.
5. Another procedure reviewed and agreed upon by the MaineDOT RTE/delegated review engineer.














C.1: Turning movement counts will be collected in the following 3 categories (shown in the graphic on the following page):

1. Passenger vehicles (FHWA Scheme F, Types 1-3);
2. Single Unit Vehicles (Types 4-7).
3. Combination Vehicles (Types 8-13)

Pedestrians and bicycles will be collected for each leg of the intersection when considered appropriate by professional engineering judgment and/or local agency requirements.

If project-specific data requires additional vehicle classification (i.e. school buses, construction vehicles, etc.), an additional category will be compiled to the data.

D.1: Data will generally be collected in 15-minute intervals, unless project specifics dictate shorter intervals. Reports will be supplied both in hard copy and electronically.

FHWA Vehicle Classifications			
1. Motorcycles 2 axles, 2 or 3 tires 	2. Passenger Cars 2 axles, can have 1- or 2-axle trailers 	3. Pickups, Panels, Vans 2 axles, 4-tire single units Can have 1 or 2 axle trailers 	4. Buses 2 or 3 axles, full length 
5. Single Unit 2-Axle Trucks 2 axles, 6 tires (dual rear tires), single-unit 	6. Single Unit 3-Axle Trucks 3 axles, single unit 	7. Single Unit 4 or More-Axle Trucks 4 or more axles, single unit 	8. Single Trailer 3- or 4-Axle Trucks 3 or 4 axles, single trailer 
9. Single Trailer 5-Axle Trucks 5 axles, single trailer 	10. Single Trailer 6 or More-Axle Trucks 6 or more axles, single trailer 		
11. Multi-Trailer 5 or Less-Axle Trucks 5 or less axles, multiple trailers 		12. Multi-Trailer 6-Axle Trucks 6 axles, multiple trailers 	
13. Multi-Trailer 7 or More-Axle Trucks 7 or more axles, multiple trailers 			

Time of Year Exceptions

If circumstances arise such that data collection is not able to be completed during the above outlined recommended time windows, then MaineDOT’s State Traffic Engineer/delegated review engineer may issue signed Traffic Movement Permits for development projects that fully conform appropriately to each of the following conditions:

(Group I, Group II and Group I+II Roadways only)

1. Prior authorization is requested and granted by the RTE/delegated review engineer or designee to deviate from the stated guidelines as established and defined above for time of year data collection time periods.

2. Traffic counts will be collected during appropriate weather time periods and non-holiday week time periods only in full conformance with one of the five methods for data collection stated in Section B above. However, no counts will be conducted during the months of January and February

3. Traffic counts will be adjusted to “design hour” conditions based upon MaineDOT’s most recent Weekly Group Mean Factors. However, if a project location is near an active MaineDOT (or MPO) permanent count station, then that data is preferred for determining DHV. Can use only where traffic count book shows individual AR as group type.

4. The following sensitivity analysis process will be conducted to measure the appropriateness of the traffic data collected during the conditionally approved time period: Capacity analyses will be conducted for all study area intersections based upon the adjusted “design hour” traffic data. If any of the study area intersections operate overall at LOS C or below; then the Project Engineer will apply a ten percent increase to the forecast design hour traffic volumes as appropriate. If the results document that all intersections operate at LOS D or better, MaineDOT may issue a TMP (subject to other considerations such as safety, sight distance improvements, etc.)

(Group III, Group I+III and Group II+III Roadways only)

Prior authorization is requested and granted by the RTE/delegated review engineer or designee to deviate from the stated guidelines as established and defined above for time of year data collection time periods.

Traffic Data Bank

The Maine Chapter of the Institute of Transportation Engineers shall coordinate with the MaineDOT to establish and maintain an electronic library for all traffic data collected in the performance of all Traffic Movement Permit development projects. A condition of each permit containing traffic movement data will be that a minimal fee be paid to cover the cost of adding the data to the state data library, and that such data will be forwarded to the appropriate designated person for inclusion in the data library.