

TRADAS Glossary

85th Percentile: The hourly traffic volume that exceeds 85% of all other hourly traffic volumes, by vehicle speed only.

Accident Rate (AC Rate): The Accident Rate (# of accidents per Million Vehicle kilometers traveled) in ratio to the critical rate (a statistically adjusted average of accident rates of a similar provincial highway) is a good indicator of which highways are having more accidents than other highways of a similar type. An A/C2 ratio that is less than 1 indicates less accidents than would be expected. An A/C2 ratio greater than 1 indicates more accidents than would be expected of a similar highway in the province.

The Accident Severity Index (ASI): an indicator of the severity of the accidents that occur on a particular segment of highway. On a scale of 1 to 100, PDO's (Property Damage Only) rate a value of 1, while accidents involving injuries rate a value of 10. If a fatality occurs in an accident it is ranked to have a severity of 100. The ASI indicates the average severity of accidents occurring on the segment, based on this scale. A higher ASI indicates a higher proportion of fatalities and injuries.

Annual Average Daily Traffic (AADT): A calculated annual estimate of the average number of vehicles traveling thorough a TM site during a midnight-to-midnight period on any day of the year.

Annual Average Days of the Week (AADW): A calculated annual estimate of the number of vehicles traveling through a TM site, for each day of the week (Monday through Sunday).

Annual Average Weekday Traffic (AAWDT): A calculated annual estimate of the average number of vehicles traveling through a TM site for each weekday (Monday through Friday).

Annual Average Weekend Traffic (AAWET): A calculated annual estimate of the average number of vehicles traveling through a TM site for each day of the weekend (Saturday and Sunday).

Average Daily Traffic (ADT): A calculated estimate of the average number of vehicles traveling through a TM site in the course of a midnight-to-midnight period for a defined number of days.

I.E. V/d where V = the traffic volume for a period greater than 1 day and d = the number of days over which V occurred.

Configure (synonyms: Binding, Configuration): Refers to the process establishing an accurate data mapping of TRADAS(BC) which associates the correct counter channels to TM points associated with a TM Site.

Once a TM Site is correctly configured TRADAS(BC) can accurately validate and load raw data files.

Core Program TM Sites (synonym: Sufficient Minimum): Collectively refers to all permanent traffic count and short traffic count supported normal or composite TM Sites defined and configured in TRADAS(BC), and that are required to fully address BC MoT traffic measurement data needs.

Initially, as of January 2004, these sites were identified in Appendix C of the Sufficient Minimum [Traffic] Data Requirements Report dated January 2003. As and when the Ministry

identifies a business need for additional TM Sites these are added to the core program.

Counter (synonyms: Data Collector, Data Logger): A time device that is used to receive, store and enable a polling process to access traffic-count data. Currently the Ministry standard counter installed in all permanent TM Stations is the Golden River 660.

Critical Rate: The Critical Rate is a statistically adjusted average accident rate for the province.

The following formula is used to calculate critical rate;

$$\text{Critical Rate} = \text{AAR} + 1.645 \times \text{SQRT} (\text{AAR}/\text{MVK}) + 1/(2 \times \text{MVK})$$

AAR stands for Average Accident Rate. The AAR must be calculated as the average of all provincial accident rates, of each strategic class of highway. The 1.645 constant corresponds to a statistical significance of 95%.

Factoring: A mathematical mechanism used to extrapolate short traffic measurements so that these provide annual summary statistics.

The Landmark Kilometre Inventory (LKI): provides a network perspective of the provincial primary and secondary numbered highways. It covers approximately 12,000 km in total. The LKI is a listing of landmarks and feature data with kilometre driven distances provided. Each highway has been divided into segments defined mainly on the basis of major road junctions.

Monthly Average Daily Traffic (MADT): A calculated estimate of the average number of vehicles traveling through a TM site in the course of a calendar month.

Monthly Average Day Of The Week (MADW): A calculated estimate of the average number of vehicles traveling through a TM site on each day of the week (Monday through Sunday) in the course of a calendar month.

Monthly Average Weekday Traffic (MAWDT): A calculated estimate of the average number of vehicles traveling through a TM site for each weekday (Monday through Friday) in the course of a calendar month.

Monthly Average Weekend Traffic (MAWET): A calculated estimate of the average number of vehicles traveling through a TM site for each weekend day (Saturday and Sunday) in the course of a calendar month.

Peak Hour Factor (PHF): An indication of the highest traffic volume, derived from the relationship between the peak 15 minute traffic volume and the full hourly volume. (i.e. $\text{PHF} = \text{Peak Hourly Volume} / 4 * \text{Peak 15 min Volume}$).

Permanent Traffic Count (Perm): Refers to a counter which collects traffic count data, 24 hours a day throughout the year.

Permanent traffic count data are used to:

- Aggregate traffic counts and describe traffic measurements associated with a TM Site
- Identify factors that can be used to extrapolate short permanent count traffic measurements

Polling: Refers to the activity of retrieving raw data files from a counter.

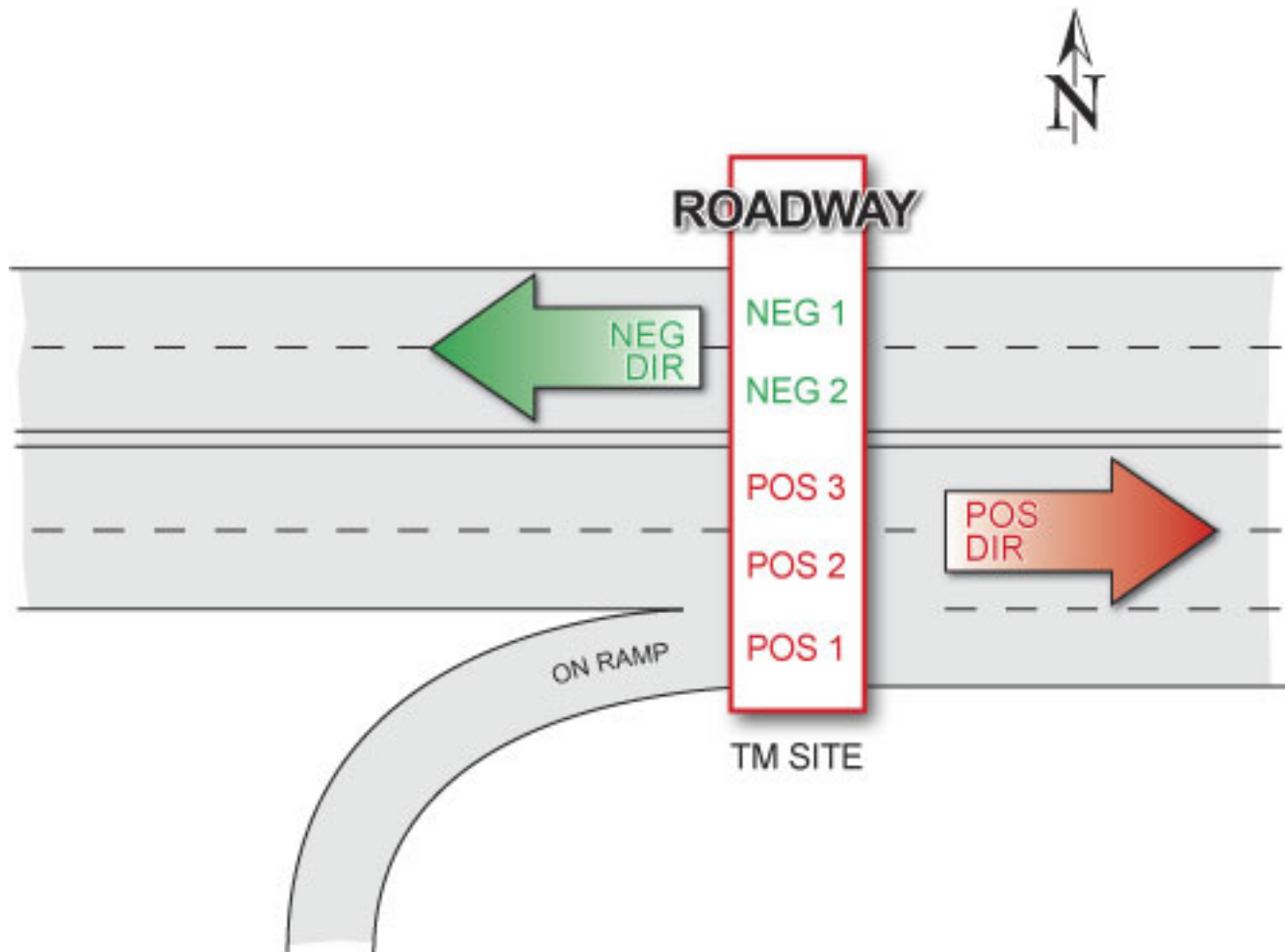
After polling is completed these raw data files are loaded into TRADAS(BC).

Provincial Highway Network: The BC highway or route network of official numbered routes; as defined at the [Ministry web site](#).

Raw Data File (RDF)(synonym: Counter File): Refers to a digital file that contains source-count data which has been collected by a counter located in a TM Station. Measurements for a properly Configured TM Site.

Roadway: The highest level of traffic measurement in TRADAS, which aggregates traffic measurements in accordance with the following general ascending roadway definition model:

- PosN: Traffic measurements for a single northbound or eastbound (Positive Direction) lane of highway where N is the number of a lane, as illustrated by Pos1 and Pos2 below
- NegN: Traffic measurements for a single southbound or westbound (Negative Direction) lane of highway where N is the number of a lane, as illustrated by Pos1 and Pos2 below
- Pos DIR: Traffic measurements for all northbound or eastbound (Positive Direction) lanes of the highway, as illustrated by Pos DIR below
- Neg DIR: Traffic measurements for all southbound or westbound (Negative Direction) lanes of the highway, as illustrated by Neg DIR below
- Roadway: Traffic measurements for all traffic using the highway, as illustrated below



Short Traffic Count (Short)(synonym: Core Program TM Sites): Refers to a counter which collects traffic-count data for only a short period of time, normally between 48 and 72 hrs over the course of a year.

Normally, fifteen-minute traffic counts are collected during a short traffic count. The results of a

short traffic count can be extrapolated, by factoring, to provide summary statistic data such as an AADT.

Sufficient Minimum: The minimum number of TM Sites the Ministry needs to measure traffic counts in order to attain a complete and accurate measure of traffic using the provincial highway network. The sufficient minimum is based on the findings of a study initiated for this purpose and is composed of the following TM Sites:

- 108 Permanent Count TM Sites
- 565 Short Count TM Sites

These values are subject to change as and when the Ministry deem additional TM sites necessary. Sufficient minimum TM sites plus additional TM sites created since Jan 1, 2004 constitute the core program TM sites.

Each TM site is related to a UTV segment.

Summary Statistic Data: Describes the result of a calculation, based on many permanent or short traffic counts, used by the Ministry to support many business needs within the Ministry. ADT, AADT, MADW, MADT values for a TM Site are all examples of summary statistic data.

Survey Area: A survey area is a geographical extent within which is contained one or more TM stations supporting one or more traffic measurements and TM sites.

TRADAS(BC) (synonym: TRADAS): The implementation of TRADAS software used by Geoplan Opus Consultants Inc. to manage traffic data on behalf of the BC Ministry of Transportation.

Traffic Count (Count)(synonym: Traffic Volume): A basic element of traffic data. Ministry traffic-count data falls within one or more of the following types:

- Volume: The traffic-count value is incremented by one (1) each time a vehicle passes
- Speed: A single speed bin traffic-count value is incremented by one (1) each time a vehicle passes
- Length: A single length bin traffic-count value is incremented by one (1) each time a vehicle passes
- Headway: A single headway bin traffic-count value is incremented by one (1) each time a subsequent vehicle passes

The Ministry collects traffic counts at many permanent and/or short TM stations to address the various business needs of the traffic data program and as defined by the sufficient minimum report.

Traffic Measurement (TM) (synonyms: traffic count[improper], Volume, Traffic Volume): The aggregation of traffic-count data from one or more counters, that describes the volume of traffic that has passed a known point or cross section of the roadway during a defined time. Traffic measurements are to TM sites what traffic counts are to counters.

The following diagram is intended to illustrate the distinction between traffic measurements and sites versus traffic counters and counters. The counter in the TM Station in this diagram is

connected to 5 loops (A through E). The vehicles detected by each of these loops result in traffic-counts. The aggregation of these traffic counts result in traffic measurements as follows:

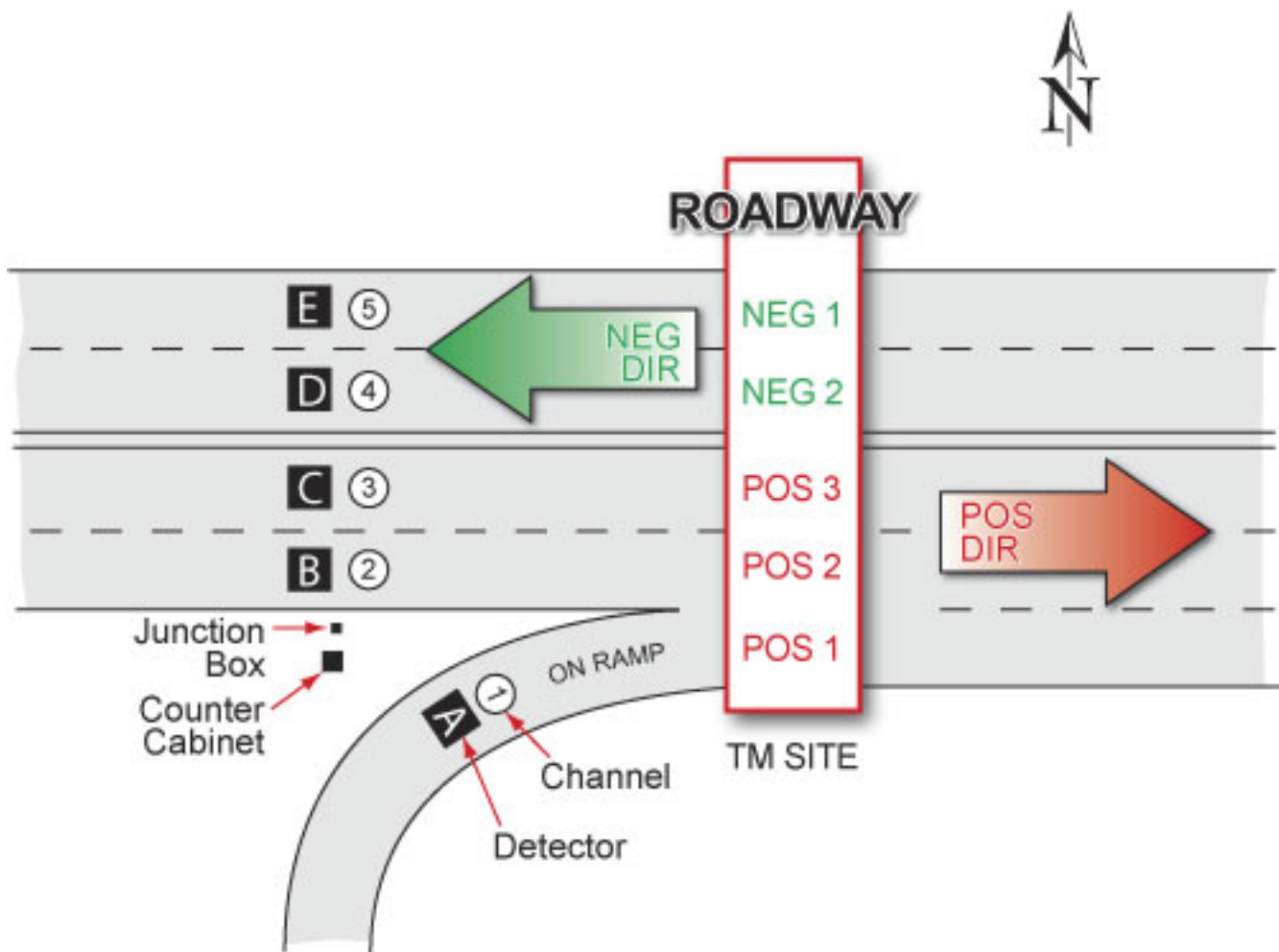
- Counter Channel A traffic counts are aggregated to provide Pos1 traffic measurements
- Counter Channel B traffic counts are aggregated to provide Pos2 traffic measurements
- Counter Channel C traffic counts are aggregated to provide Pos3 traffic measurements
- Counter Channel D traffic counts are aggregated to provide Neg2 traffic measurements
- Counter Channel E traffic counts are aggregated to provide Neg1 traffic measurements

and

- Pos1, Pos2 and Pos3 traffic measurements are aggregated to provide Pos DIR traffic measurements
- Neg1 and Neg2 traffic m are aggregated to provide Neg DIR traffic measurements

and

- Pos DIR and Neg DIR traffic measurements are aggregated to provide roadway traffic measurements



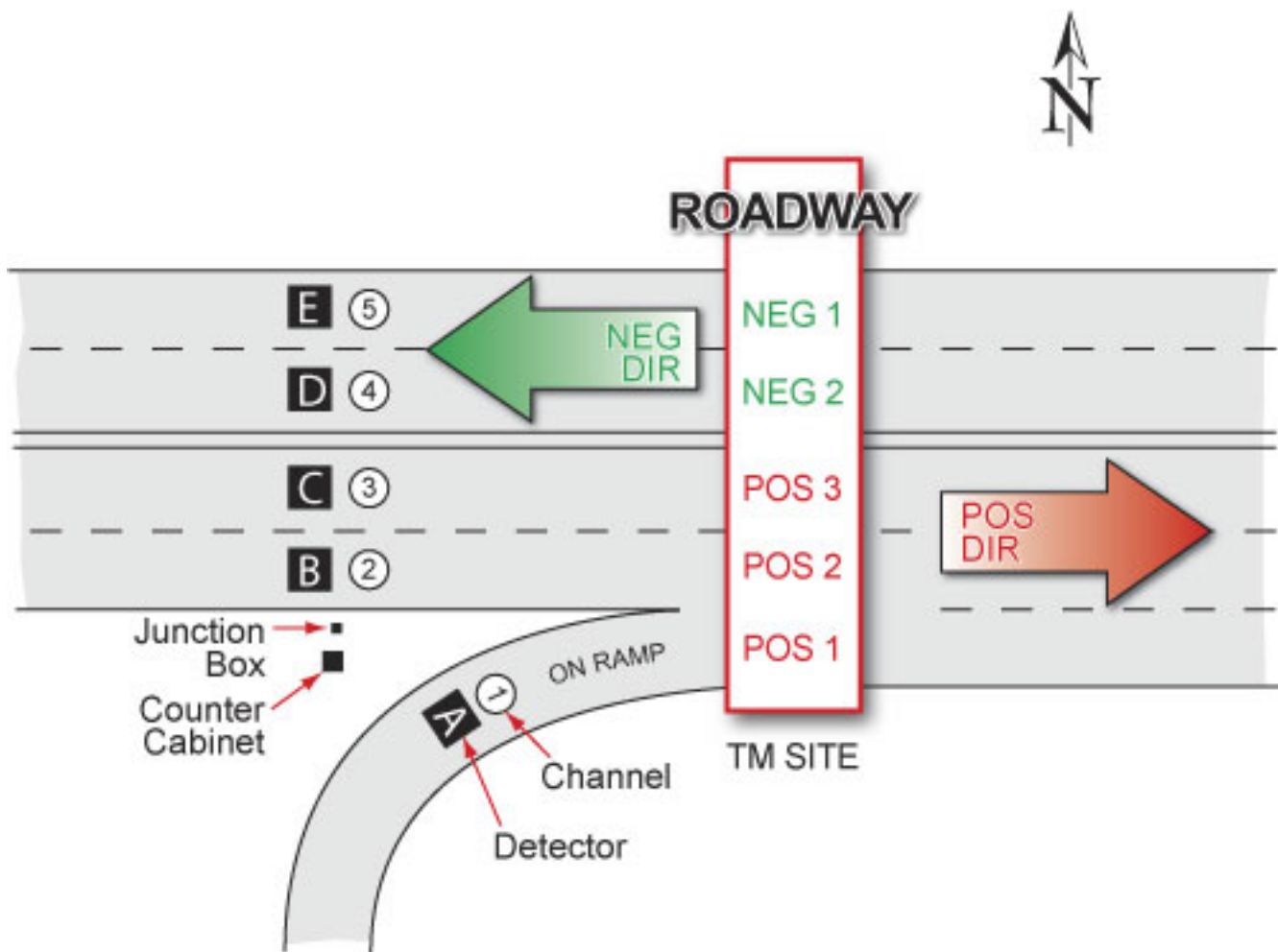
Traffic Measurement Data (TM Data): A collective term to describe all traffic-count and summary statistical data that is associated with a single TM site or UTV segment.

Traffic Measurement Equipment (TME): The physical equipment used to collect permanent and short traffic-count data. Normally TME is located in or associated with one and only one TM station.

Examples of TME include: cabinets, counters, loops or detectors, modems and batteries.

Traffic Measurement Point (TMP): A point on the highway at which traffic-count data in the traffic counter is incremented whenever a vehicle passes.

Traffic Measurement Site (TMSite): A cross section of the roadway at which traffic measurements are aggregates, based on permanent and/or short traffic counts in order to define the volume of traffic that moves along a related highway segment, and for which summary statistics can be generated and reported. This concept is illustrated as follows:



Within TRADAS(BC), three distinct TM Site types are defined in order to ensure that traffic measurements can be derived for all possible Ministry configurations of a TM Site. These TM Sites are described as follows:

- Natural TM Site (Type N Site): A TM Site that aggregates and reports bi-directional traffic-count data in a manner supported by TRADAS prior to completion of the enhancements needed to support the configuration of composite TM sites (See Below) - TM Site A in the above illustration is a natural TM site.
- Composite TM Site (Type C Site): A TM site that aggregates and reports traffic-count data in a manner that does not necessarily reflect the standard bi-directional model supported by TRADAS. The completion of enhancements needed to support the configuration of composite TM Sites in TRADAS meant that TM points could be added or subtracted to natural TM sites - TM site B in the above illustration is a composite TM site because TM site B is merely TM site A plus Pos1.
- Placeholder TM Site (Type P Site): A site that aggregates traffic-count data only in order to support the configuration of one or more composite TM sites - TM Site B Pos 1 in the above illustration is a placeholder TM site because it exists merely so that it can aggregate traffic counts in support of TM Site B and will never report traffic measurements otherwise.

Traffic Measurement Station (TMStn): Contained within a survey Area, a TM station is

identified as the post/cabinet where TME is either installed or to which TME (i.e. detector loops) is connected.

Uniform Traffic Volume Segment (UTVS): A segment of the Provincial Highway Network within which the traffic volume is deemed to be consistent. In reality UTV Segments are described by the link/node topology of the Provincial Highway Network and Permanent TM Stations.