

# Total Volume Program & Vehicle Classification Program Guidelines for Site Scheduling, Count Collection, and Count Submission

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These guidelines are intended to aid the Count Manager (or equivalent local agency administrator) in ensuring that data collected is useable for determining AADT and Vehicle Classification. Each year the Count Manager should review these guidelines with their Field Staff, especially for those new to traffic counting. **Please remember that safety is our number one concern. Thank you for your efforts and continued cooperation!**

## General Guidelines

- **Typical Conditions:** It is very important to make sure that all traffic counts are taken during “typical conditions.” This means scheduling location visits to avoid effects due to **construction, major events, harvest season, and to count during the school years near universities or high schools**. If a count is taken during “unusual conditions” it is very important to note this, in as much detail as possible, in the comments.
- **Field Staffing:** To ensure there is adequate time for school year and recounts hire staff March or April through October.
- **Date and Time:** Traffic counts need to be taken on weekdays for 48 consecutive hours. We can accept **47-49** hour counts, but this should be included in the **comments** to avoid unnecessary recounts (please see “Equipment Failure” below for more details of salvaging data). In many areas Friday afternoons do not fall within “typical conditions” and should be avoided.
- **Count Locations:** These location descriptions are approximate. The general rule is that in rural areas the counter is set within 1/10 of a mile of the location description and in cities within the block. Equipment should be set to avoid turning movements (such as driveways or service roads). If necessary the count can be moved to another location **within the same traffic segment** as long as the Count Manager or Central Office is consulted to ensure that the volume still represents the majority of the traffic segment.
- **Communication:** Please contact Central Office or your Count Manager if there is any question regarding counter placement or segmentation. **This needs to be done either from the field or before traveling out to the site.**
- **Construction:** Avoiding construction effects (both MnDOT and local) is critical to obtaining quality traffic. All **construction routes, planned detours, and locations in the surrounding area** should be counted either before a project begins or after it is completed. Construction related data will not

be accepted by Central Office. If scheduling around the project is not an option please refer to the programs online [Construction Policy](#).

- **Field Observations:** Use the comments field to capture important details about or changes to a location and the surrounding areas (examples: new development, school, diagonal parking, opening or closing of a major employer). This additional information can prevent unnecessary recounts. Please refer to the “Common Comments” listed at the end of this document.
- **Sites Assigned:** The Location Listing should be used to track and schedule the sites assigned for the season. MnDOT staff should only count those sites found in this listing. This listing will be provided in an Excel format. **Recounts:** These are very important to the program so please budget adequate time (usually 20-25% with experienced staff). Central Office will verify the need for all recounts on a **weekly** basis. Please **wait for an updated schedule from us before collecting them.**
- **Recounts:** These should be done in the context of program priorities as well as efficient driving circuits. Priority is as follows, from highest to lowest: First Pass, Trunk Highways, HPMS, State Aid Needs (CSAH/MSAS), County Roads. Please contact Central Office if you need assistance in determining priority. Recounts at schedule vehicle class sites can be set as a regular volume count unless otherwise directed by the VC teams. In addition, **please remember that recounts should be taken at least 1 month after the initial set if at all possible.**
- **Status:** The Central Office will estimate each districts Percent Complete as part of the monthly Status Report that is sent to each district (updated location listings will be available more frequently). Our definition of “Complete” is a site that has enough **usable data** to estimate an AADT. Complete does not mean that a first pass count has been taken or even that a recount has been taken. The Percent Complete Benchmarks are as follows:
  - 40% by July 1<sup>st</sup>
  - 60% by August 1<sup>st</sup>
  - 80% by September 1<sup>st</sup>
  - 100% by October 1<sup>st</sup>
- **Vehicle Classification:** The TimeMark counters are used to take most of the vehicle classification counts. This involves using two tubes instead of one and setting up the counter to retain **properly named** data files for later downloading. Please ensure that each VC Site Code used is complete and accurate. The **twelve** digit ID must contain, and in this order, the: VC site number, Number of boxes at a site, Direction of travel, Lane number, Route system, and Route number. **Please contact the Vehicle Classification Program for details on site coding and data processing prior to collecting data.**
- **Safety: Your safety is our number one concern.** Please send Central Office a list of sites that your district deems too dangerous for Field Staff to attempt data collection as soon as possible.
- **Coordination:** The State Aid Office for Local Transportation and the Minnesota County Highway Engineers Association (MCHEA) have requested that MnDOT Count Managers **call Engineers or**

**Public Works Directors in all counties and cities scheduled (prior to setting the first count of the season)** regarding construction projects, detours, and any other situations that might affect district's scheduling of traffic counts. Districts should begin calling and/or visiting the cities and counties by mid-March each year. It is important to follow up later in the season to coordinate mowing/sweeping activities and to verify construction progress and completion dates, especially if recounts are needed. This information should be summarized by Sequence Number and sent to the Central Office at the end of the season to explain why a count could not be taken.

## Equipment

- **Equipment Failure:** In some cases it may be possible to salvage a count even if the **equipment failed**. If you encounter this situation please record the **24 hour total** from the Diamond Tally 6 menu or if using another type of equipment note the **number of hours** that the equipment was functioning as well as the **total volume** at the time of the failure. Enter the proper notes in the Comments field before submitting the data.
- **Equipment Maintenance:** Properly functioning counter and tubes are key to accurate data collection. All batteries should be fully charged. **TimeMark battery voltage should be between 6.4 and 7.0 volts after charging, if not, replace the battery.** Batteries in Tally 4 or Tally 6 units need to be ordered and replaced every 4-5 years. Tubes should be examined for holes, and any other equipment acquisitions and preparations should be completed prior to the beginning of the field season.

## Scheduling Guidelines

- **Length of Season:** Traffic counts should be taken between April 1<sup>st</sup> and October 1<sup>st</sup> (October 31<sup>st</sup> if no harvest conditions). Counts taken in October can often be affected by harvest and other First Pass: non-typical conditions, so it is best to complete the counts as early as possible.
- **First Pass:** We expect that all locations will be counted at least once during the season and that first coverage is a higher priority than recounts.
- **Construction:** Schedule counts in locations affected by construction either before the project begins or after it is completed. If this is not possible because the project will be ongoing for the entire field season or several seasons, consult the online [Construction Policy](#). Please note the field listing accordingly. MnDOT staff should make the necessary contact with cities and counties to verify construction activity.
- **School Zones:** Please schedule counts at sites where school year traffic is higher than summer traffic during the school year (April-May or September-October). Elementary and Middle schools may or may not fall under this category. Field staff is to use their best judgment, or contact the local partner, and relay any information back to Central Office.

- Holidays: We recommend that you do not take counts on days adjacent to holidays or weekends when those holidays occur. For example, do not count on the days immediately prior to or following the July 4<sup>th</sup> holiday.
- Harvest: Please do not count sites that have increased volumes during the harvest season late in the year. Depending on the type of agricultural crops in your district some counts may still be taken into September. **This is especially important for Vehicle Class Counts (VC).**

### Data Submission (for all raw/unadjusted total volume traffic counts)

- Accuracy: The accurate submission of counts is very important. It is critical that these tasks be assigned to someone who is very conscientious and who makes very few errors. **Completed data submission files should be saved/sent to Central Office on a weekly basis using the template provided** (column format of: Data Type (P, P24, A, A24, V, V24) Code, Seq #, Seq Dir, Begin Date, End Date, Tally, Comments, Initials). Please contact the Traffic Volume Program central office staff if you have any questions.
- Data type: The most common data types used is P, P24, and A. The code of V or V24 should only be used when a count is taken using a 2 tube vehicle class setup and the count data has been axle corrected to represent vehicles. Please refer to the Data Type Section below for more details and review the “How To” instructions prior to submitting data.
- Comments: When populating the data submission form **the comment field should be used anytime a count is questionable or anytime the field person noticed something of importance while in the field.** This comment should be **concise** (refer to the “Common Comments” section below for some examples of abbreviations). If further elaboration is necessary this should be sent to CO.
- Real Data: **Do not submit a raw count of “0”** for when there was a lost tube or counter failure. Please reset these counts. **Do not submit a null count or count of “0” for construction, detour, or any other site that was not actually set.**

### Contacts

Please visit our website for additional information: <http://www.dot.state.mn.us/traffic/data/>. If you have any general questions or questions while in the field regarding please call:

- Traffic Volume Program – Christy Prentice, 651-366-3844; Alex Stoiaken, 651-366-3853; Darin Mertig, 651-366-3858; Mark Flinner, 651-366-3849
- Vehicle Classification Program – John Hackett, 651-366-3851; Shannon Foss, 651-366-3878
- MnDOT Counter Repair/Replacement/Testing – Gary Berg, 651-366-5756
- MnDOT Traffic Counting Supplies – Mark Harrington, 651-366-5720

## Data Type Codes

To be used when submitting the .csv file to the Traffic Monitoring Office. It is very important to use the appropriate code so as to avoid misapplication of factors. Codes A, P, and V will prompt the database to divide the value by the number of days between the Begin Date and End Date entered.

- **A** – Total axle single hits recorded over the counting period (for example the TimeMark counter window)
- **P** – Total axle pairs recorded over the counting period
- **V** – Total vehicles (only used with loop detectors) recorded over the counting period
- **A24** – 24 hour average axle single hits
- **P24** – 24 hour average axle pairs
- **V24** – 24 hour average total vehicles (only used with and loop detectors)

## Common Comments

- **CONST** – count site under construction during the entire current year or longer (review Construction Policy)
- **DET** – count site was part of a detour during the entire current year or longer (review Construction Policy)
- **LT** – Lost tube, cut tube
- **CF** – Count failure due to machine, battery, tube, vandalism, etc
- **DP** – diagonal parking might be impacting count
- **PP** – parallel parking might be impacting count
- **TRK RT** – truck route causing higher than average traffic (don't need to know # of axels)
- **TRAF PAT CHNG** – travel pattern has changed and has impacted AADT (increase or decrease)
- **NEW DEV** – new housing or building developments in the area
- **UPGRADE** – route has been paved, widened, or upgraded in some way since last count
- **SEE HIST** – see count history for comparable AADT
- **SEE SURR** – see count info from additional locations along the same route to support the change at the count location in question
- **AVG HIST** – current AADT created by averaging the current count with historical counts (if anything other than past is used there years will be listed)
- **AVG CURR** – current AADT created by averaging the multiple counts from this year
- **EST** – current AADT was estimated
- **EST HIST** – current AADT was estimated from history
- **EST SURR** – AADT estimated from surrounding counts for this cycle
- **AD** – analyst discretion, some counts are questionable and not used in AADT estimation
- **DIR CALC** – only one direction was collected, value is doubled to estimate AADT
- **CLOSE TO TOL** – close to the need for recount tolerance (above or below)
- **RCL** – recounts confirm AADT is lower (not needed if recount is within tolerance)
- **RCH** – recounts confirm AADT is higher (not needed if recount is within tolerance)
- **LIM HIST** or **NO HIST** – count history to compare against current count is limited or non-existent
- **NO AADT** or **NO COUNT** - the count location was added during the current year but not in time to collect a count
- **NEW LOC** – the count location was added during the current year, history may not apply
- **DEF** – no count was taken, default value was entered
- **LOC MOVED** – the count location was moved in the year indicated