

**NEW YORK STATE
TRAFFIC MONITORING STANDARDS
FOR
SHORT COUNT DATA COLLECTION**

June 2020

**NYS Department of Transportation
Office of Engineering
Technical Services Division
Highway Data Services Bureau**

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1. Applicability

These standards shall apply to all short count traffic monitoring activities undertaken by New York State Department of Transportation (NYSDOT) staff, private consultants, engineering firms, contractors, and non-NYSDOT organizations (Metropolitan Planning Organizations, Counties, Cities, Villages, or Towns), in support of any project or study for which funds administered and/or provided by New York State have been or will be used.

2. Foreword

This document, produced in 2020, replaces EB 18-005 “New York State Traffic Monitoring Standards for Short Count Data Collection”, as indicated in the accompanying Engineering Bulletin. These “Minimum Short Count Traffic Monitoring Standards” shall apply to any contracts let after January 1, 2020.

Contained herein are the Standards developed by the New York State Department of Transportation (NYSDOT or Department) for the purpose of collecting traffic data for short durations (short counts). These activities are undertaken in part to meet Federal Highway Administration (FHWA) requirements for Highway Performance Monitoring Surveys (HPMS) and data submissions required in that regard. NYSDOT follows the guidelines provided by FHWA in the Traffic Monitoring Guide (TMG) with consideration for current transportation legislation.

The primary purpose of these standards is to ensure that data from traffic monitoring activities involving funds administered and/or provided by New York State are received by the NYSDOT Highway Data Services Bureau in the appropriate format. This ensures that the data are available for use at all levels within and outside the Department.

These standards will be reviewed periodically and revised as necessary by the NYSDOT Highway Data Services Bureau.

3. Definitions

Offices

Main Office (MO) – This refers, in general, to the Traffic Monitoring Section of the Highway Data Services Bureau at the NYSDOT Main Office, 50 Wolf Road, Albany, NY. Contact by phone at 518-457-1965 or by e-mail at MO-TrafficDataViewer@dot.ny.gov.

Regional Office – This refers, in general, to the Traffic Monitoring Program Contacts in each NYSDOT Regional Office, listed in Appendix A.

Staff

Field Technician – Any person who travels to a traffic data collection site and:

- places traffic recording equipment
- collects traffic recording equipment
- acts as a spotter or flag person for any of the people listed above
- accompanies the people listed above

Office Staff – Any person who works in a permanent, temporary, or field office, and:

- manages a traffic count collection Program or Team
- prepares schedules for traffic data collection
- provides communications support to Field Technicians
- collects and/or interprets data from Field Technicians
- prepares and/or distributes Traffic Count Data Submission Files
- produces and/or distributes Invoices

Count Terminology

Primary Direction – The direction along the roadway in which vehicles are traveling from the Begin Description to the End Description of a station.

Valid Data – Data that has been validated and accepted by the Regional Office or Main Office.

NYSDOT Workweek Period – The period of time during a calendar week starting Monday at 6:00 a.m. and continuing through to the subsequent Friday at 12:00 p.m.

Weekend Period – The period of time during a calendar week starting Saturday at 12:00 a.m. and continuing through to the subsequent Monday at 12:00 a.m.

Work Week (WW) – A Work Week is numbered from the Work Week Calendar produced at the beginning of each calendar year by the Main Office. The end of the data collection period defines which Work Week is used to identify the data collection.

Change-Order Number – A number assigned to a case study for replacement of a GPS coordinate, as supplied by Main Office. This Change-Order Number shall be included on the subject Field Log Sheet.

Traffic Count Site – The traffic count location defined by the GPS coordinates.

Traffic Count Station – Segment of road between two headers defined in the Station header file.

Traffic Count Data Group – Group of Traffic Count Stations where data is required to be collected on the same dates.

Count Types

Volume Count – This refers to the collection of traffic volume data only, along a travel way, between the designated limits, stored directionally in 15-minute intervals.

Classification Count – This refers to the collection of vehicle classification data, vehicle speed data, and traffic volume data, along a travel way, between the designated limits, stored by lane for each direction, in 15-minute intervals.

Tube Count – Traffic data collected through the use of road tube(s) affixed to the pavement, and an Automatic Traffic Recorder (ATR).

Loop Count – Short duration traffic data collected through the use of permanently installed induction loops and/or piezoelectric axle sensors.

Manual Count – Traffic data collected by means of a person or persons, at a data collection site, recording data by hand, or with a digital collection board.

Non-Intrusive Count – Traffic data collected by means of video, radar, acoustic sensors, laser, or infrared equipment, typically set up within the right of way, but not on the travel way.

Weekday Count – A count containing the minimum required intervals, as specified in this document, collected during the NYSDOT Workweek. The data for one Weekday Count may be collected during consecutive NYSDOT Workweeks.

Weekend Count – A count containing the minimum required intervals, as specified in this document, collected during Weekend Periods. If collected in multiple Weekend Periods, the data must be collected in consecutive Weekend Periods.

4. Safety

1. All work is to be performed in accordance with Appendix B, NYSDOT Traffic Monitoring Traffic Count Safety Standards. The appendix refers to the NYSDOT Work Zone Traffic Control Manual available at: <https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/safety-program-technical-operations/work-zone-control/typical-applications>
2. A Region's Health and Safety requirements may exceed this document. It is the responsibility of the Field Technician to contact the Regional Office for guidance regarding additional requirements.
3. All traffic count operations are to be conducted with the safety of the crews and the motoring public as a priority.
4. All traffic count operations require a minimum of a two-person field crew.
5. NYSDOT staff has the authority to suspend a traffic counter placement that is observed to be hazardous to the public or the contractor's or Department's personnel.
6. Ensuring safe operations is the responsibility of the Field Technicians. Violations or improper practices observed by or reported to the Department shall be reported to the Field Technician or their direct supervisor for immediate correction.
7. All Field Technicians are required to attend an annual safety training program.
8. Should the Field Technician conclude that data collection at any site is not possible or presents unacceptable risk the Field Technician shall notify the Main Office, and, when appropriate, the Regional Office. Notification shall consist of identification of the location, a full description of the problem and a suggested alternative location if one exists on the same facility. Alternate or substitute locations will be reviewed by the Main Office. Prior to data collection, all such substitute locations must be approved by the Main Office.

5. Site Identification

Traffic count locations will be identified by a unique six-character traffic count station ID. The station ID will be provided by the Main Office.

Each count shall be described by the Main Office through the use of the route number/route name, county road number, road name, beginning termini, ending termini, section end mile point, section length, factor group, functional classification and recommended geospatial coordinates. Counts should be taken as close to the recommended geospatial coordinates as is safely possible (see GPS Position Requirements Page 11).

Prior to undertaking any traffic counts, the Field Technician is specifically directed to contact the Regional Office (see Appendix A for telephone numbers) to coordinate this activity and obtain any additional information necessary to identify the count sites as described above.

The Field Technician must complete detailed documentation about the counter location, as specified in Appendix C.

6. Accuracy

The New York State Department of Transportation, through its Highway Data Services Bureau, maintains coverage and continuous count elements of the NYSDOT traffic monitoring program.

Both elements are conducted in compliance with the FHWA Traffic Monitoring Guide. The coverage count program is developed to establish high confidence level AADTs; specifically, estimates within $\pm 10\%$ of the statistical mean at a confidence level of 95%.

All portable traffic counters must be tested annually, prior to the count season, to ensure that their count deviation does not exceed 2%, see Appendix D, Equipment Testing Specifications. Additionally, device type, model accuracy, precision documentation, and operation and maintenance records will be maintained by the counting organization and provided to the Main Office before the beginning of each count season and upon request.

7. Minimum Short Count Traffic Monitoring Standards

Standards defined in this section and Appendix A apply to volume, classification, weight, and speed counts. Validity of counts shall be determined by the Main and Regional Offices. All minimum criteria must be satisfied for each count unless otherwise specified in writing by either the Regional Office or the Main Office.

- All data files provided shall have 15-minute intervals.
- Unless otherwise noted, a required minimum of seventy-two (72) continuous hours of valid data shall be reported from the NYSDOT Workweek Period.
- For Non-intrusive video-based data collection, a minimum of fifty (50) continuous hourly intervals of data must be submitted from the NYSDOT Workweek Period.
- A Weekend Count for volume and/or classification may be requested by the Regional or Main Office. A Weekend Count shall have a minimum of 24 hours of valid data reported from the Weekend Period. The entire Weekend Period must be included in the count session with at least one (1) complete hour of Valid Data for each hourly interval of a 24-interval day (e.g. one complete 4:00 a.m. hour). Each Weekend Count must be accompanied by a NYSDOT Workweek Count, with data collected on a day adjacent to the Weekend Period counted.
- All NYSDOT Workweek Counts must include at least two valid counts for each hourly count interval, regardless of data collection method.
- Volume counts must be collected by direction.
- Classification counts must be collected by lane.
- All directional and lane data for either a Traffic Count Station or Traffic Count Group must be collected on the same dates.
- Minimum recording intervals for signalization studies, including roundabouts, will be specified in writing by the Regional Office.
- No part of a regularly scheduled NYSDOT Workweek or Weekend count used for AADT estimation may contain data collected during holiday intervals specified by the Work Week calendar. The Regional Office must also be contacted for restrictions due to local events.
- Before collecting data on a station with notes, the field crew must read and understand the restrictions and requirements of the note.
- Stations with seasonal restrictions will not be accepted if the data is collected during the restricted dates.

- Traffic Count Data Groups (TCDG) shall be divided into 3 groups as follows:
 - 2 – 4 Traffic Count Stations
 - 5 – 8 Traffic Count Stations
 - 9 or greater

Traffic data must be complete with all sets and collected on the same dates. If any Traffic Count Station within the TCDG is rejected a minimum of two stations will need to be recounted. If 40 percent or more of the total number of Traffic Count Stations in the TCDG are rejected the entire Group will need to be recounted. If the field crew knows a count within the TCDG is not good they shall contact the Main office for direction on how to proceed.

- Volume counts completed on Interstates must be per vehicle counts.
- Volume counts completed on Interstates must be counted by lane.
- Unless otherwise permitted by the Main Office, the same method and model counter must be used for all lanes and directions of a count.

8. Vehicle Classification

Vehicle Classification must be collected as described below. For Interstates (FC01, FC11) and Expressways (FC02, FC12) all segments may be collected in the 6 Bin Video based format. For all other Functional Classes, the method of collection is at the discretion of the Field Technician provided that not more than 10% of segments in any Functional Class by Region group are collected as non-13 Bin classification.

8.1. Axle Based Classification – 13 Bin

Typically, vehicle classification counts will be based on the FHWA 13 Vehicle Category Classification shown below and as described in the FHWA TMG. Classification schemes shall be approved by the Main Office before use in the field. Axle based classification schemes must use specific axle spacing limits for selected vehicle classes as listed below. Axle Based Classification may be collected using Approved Devices with traditional Axle Sensors or Approved Video Collection Devices that classify based on Axles.

FHWA Axle Classification Scheme

F1	Motorcycles
F2	Autos ¹
F3	2 axle, 4-tire pickups, vans, motor-homes ¹
F4	Buses
F5	2 axle, 6-tire single unit trucks
F6	3 axle single unit trucks
F7	4 or more axle single unit trucks
F8	4 or less axle vehicles, single trailer
F9	5 axle, single trailer
F10	6 or more axle, single trailer
F11	5 axle multi-trailer trucks
F12	6 axle multi-trailer trucks
F13	7 or more axle multi-trailer trucks

¹ Including those hauling trailers

Specific Axle Spacing limits by selected Class

Class	Description	Axle Spacing (ft)	
		Spacing 1	Spacing 2
F1	Motorcycles	>0 - 6.0	
F2	Autos	>6.0 - 10.2	<18.0
F3	2 axle, 4-tire pickups, vans, motor-homes	>10.2 - 13.0	<18.0
F4	Buses	>20.0 - 40.0	
F5	2 axle, 6-tire single unit trucks	>13.0 – 20.0	

8.2. Manual Classification – 13 Bin

Manual classification counts will be based on visual determination of the FHWA 13 Vehicle Category Classification.

1. Manual vehicle classification counts are to be taken by lane and direction. Twenty-four (24) consecutive hourly counts must be taken within the NYSDOT Workweek period (6:00 a.m. Monday through 12:00 noon Friday). A concurrent volume NYSDOT Workweek Count must be scheduled at the classification location according to the Department's standard. The volume count must include the manual class count hours of operation.

At the request of the Regional Office, manual class counts for other than 24-hour duration may be required for special projects. These counts could range from a few hours to 24 or more consecutive hours.

2. Acceptance of manual vehicle classification data by the Main Office shall require that the absolute difference in total axles recorded by the ATR at the location of the class count and axles computed from the manual vehicle classification count be 10% or less of the manual computed axle value for the duration of the manual class count.

8.3. Vehicle Length Based Classification

Many non-intrusive devices collect length-based vehicle classification data. New York will allow length-based vehicle class for approved non-intrusive devices when used with the approval of the Main Office. Before count placement, the Field Technician must obtain, from the Main Office, the binning scheme required for length-based vehicle classification data.

8.4. Video Based Classification – 6 Bin

Video based classification must be able to produce the six HPMS Summary Table Vehicle Class Groups as defined by table 3-3 of the 2013 FHWA TMG:

HPMS Summary Table Vehicle Class Group	FHWA 13 Vehicle Category Classification Number
Group 1: Motorcycles (MC)	1
Group 2: Passenger Vehicles (PV)	2
Group 3: Light trucks (LT)	3
Group 4: Buses (BS)	4
Group 5: Single-unit vehicles (SU)	5,6,7
Group 6: Combination Unit (CU)	8,9,10,11,12,13

Video based classification data is required to be submitted in the length-based classification format defined in Appendix A.

9. Vehicle Speed Bins

Speed data collected by tube counters or non-intrusive devices must be binned by the approved NYS Speed 15 Bin Scheme as follows:

- 00-20.0 mph
- 20.1-25.0 mph
- 25.1-30.0 mph
- 30.1-35.0 mph
- 35.1-40.0 mph
- 40.1-45.0 mph
- 45.1-50.0 mph
- 50.1-55.0 mph
- 55.1-60.0 mph
- 60.1-65.0 mph
- 65.1-70.0 mph
- 70.1-75.0 mph
- 75.1-80.0 mph
- 80.1-85.0 mph
- >85.0 mph

10. Non-Intrusive Counting Devices

The Main Office may require the Field Technician to use alternative methods and/or devices for collecting traffic data on some of the high volume, high speed facilities. Alternative methods and/or devices may include non-intrusive devices such as acoustic sensors, laser counters, radar counters, and camera systems. Requirements for approved camera systems are outlined in Appendix E. The Main Office may also require the use of camera systems for some intersection turning movement counts and roundabouts.

For instructions on the process for approving alternative traffic count devices, see Appendix F, Approving Short Count Traffic Counters and Alternative Counting Methods and / or Devices.

11. GPS Position Requirements

A coordinate reading is required for all traffic counts, which must be collected by a handheld GPS device, at the counter location. Coordinates must be collected and formatted as outlined in the attached Appendix G. All coordinates will be reviewed; any coordinates found to be inaccurate will be sent back to the Field Technician who will retake that reading, at the counter location, prior to the end of the count season.

Field Technicians will receive a set of coordinates for each traffic station. The traffic count must be conducted within 200 feet along the road of the given coordinate in an urban area. In a rural area, the traffic count must be conducted within 500 feet along the road provided there are no intersecting roadways or commercial driveways between the count location and the given coordinate. The measurement between the provided coordinate and count location shall be as measured along the line indicating the left limit of the traffic lanes for the primary direction of the road. Urban and Rural definitions can be determined by the Functional Class provided with the station locations.

If the Field Technician elects to use multiple set-ups for one station, and the set-ups are more than 60 feet from each other, then a coordinate reading is required for each set-up. If the set-ups are less than 60 feet from each other, the Field Technician shall report the location of the set-up that is recording traffic going in the primary direction. Any traffic data collection set-up for the primary direction lanes must be within the limits listed in this section, as appropriate. When using two set-ups, both set-ups must be located within the same block, or in the case of an interstate or parkway, between the same interchanges.

GPS points delivered by the Field Technician should not be identical to any provided to the Field Technician for placement purposes.

If a Field Technician cannot find a suitable location to conduct the primary direction of a traffic count within the defined distance of the given coordinate, they must contact the Main Office and receive a Change-Order Number for permission to count elsewhere.

12. Field Log Requirements

All counts will be accompanied by a field log sheet showing:

- Site Information
- Counter Location Information
- Crew Information
- Count Installation Information
- Counter Information
- Count Notes
- Map of Location
- Counter Layout Diagram
- Site Photos

See Appendix C for details.

13. Data Reporting Format

All short count data, regardless of the equipment being used, must be reported to the NYSDOT Main Office in the standard NYSDOT short count data reporting format as outlined in the attached Appendix A. Questions regarding data format should be directed to the Main Office.

14. Traffic Count Package for Data Submission

Once collected, counts must be submitted in a complete traffic count package. This must be a single *.zip file, containing the following parts;

1. A cover letter (for details see Appendix H)
2. Count files formatted as previously defined
3. Field logs containing the required site identification information (as found in Appendix C)
4. Site photos
5. File with geospatial coordinates (as found in Appendix G)
6. Raw data files as downloaded from the counters
7. Other information pertinent to the counter placement activities

Traffic counts will not be processed until all parts of this package are received and are found to be complete.

Each Work Week's count data shall be contained in a separate traffic count package and must follow conventions described in Section 16, **Traffic Count Package File Naming Convention**. A traffic count's Work Week is specific to the end date of data collection. Unless otherwise directed, data from a single Work Week shall be broken down into more than one traffic count package by count type (e.g. Classification package and Volume Only package) and contain no more than 20 sites of Volume Only data or no more than 10 sites of Classification data. When data from a single Work Week is divided into multiple traffic count packages, the data and count information for each site must not be separated into different packages. All field logs and geospatial coordinates in the traffic count package shall only pertain to the sites in that package.

15. Transmittal of Count Data

Unless directed otherwise, all traffic count packages shall be uploaded to ProjectWise. Cover-letters for Volume Only and Special request traffic count packages shall be e-mailed to both the Region and the Main Office. Cover-letters for Classification traffic count packages shall be e-mailed to the Main Office. Additional parties shall be sent copies of the traffic count package, as directed.

16. Traffic Count Package File Naming Convention

The format for naming ZIP files is:

R##B##xORG####*.Zip (no spaces, only alphanumeric, no special characters)

This name consists of several pieces of information about the ZIP file:

R## B ## x ORG #### * .zip

Where:

R## The NYSDOT Region formatted as “R” plus two numeric digits representing the Region in which the data were collected. A leading zero (0) is required for Regions 1-9.

B Type of Count Batch:

- “V” for Volume-only counts
- “C” for Classification counts (includes volume files, and speed files in addition to classification files)
- “M” for a mix of Volume only and Classification counts or a mix of Base Program and Special counts
- “S” for a batch that includes only specially requested counts
- ”L” for video-based Classification counts (includes volume files)
- “T” for Turning Movement Counts (TMC’s)

The Work Week number, always two digits, with a leading zero (0) when appropriate

x Sub-Week letter, used to indicate more than one batch of this type submitted for that Region/Work Week. When only one batch of this type is being submitted for a Work Week, the letter will be “a”. Work Weeks’ counts should be distributed evenly between Sub-Week files, with count stations being complete in each file.

ORG The three-character alphanumeric code, defined by the Main Office, which represents the collector of the data being submitted. The code is always three characters and all caps.

The last four digits (numeric) of the Contract or Purchase Order number under which the data was collected. If the data was not collected as part of a paid arrangement with NYSDOT, this field must be filled with “0000” or “000#” if collected by a County or MPO, where “#” is the County number in that Region or a designated number for the MPO.

* This is an optional open area of the file naming, should additional information be necessary.

17. Count Acceptance

Traffic count acceptance will be determined based upon NYSDOT's successful processing and editing of the submitted count data. No payment will be made for counts that are rejected or counts that are not in accordance with the Traffic Monitoring Standards contained within this document.

The Main Office reserves the right to reject data submitted that cannot be field verified using historical or current data at that location. All data submitted to NYSDOT will be retained regardless of rejection status.

It is the responsibility of the Field Technicians to be informed of roadway construction and paving and to observe how the area traffic will be affected by this activity. Traffic counts scheduled by the Department shall not be taken in areas where construction or paving is occurring or scheduled to occur during the period of the traffic count. The Department may reject traffic counts taken in such locations. Additional information regarding construction related projects and delays may be found on the NYSDOT website at <http://www.511ny.org/>

Unless otherwise specified by the Regional Office or Main Office, for any count, all lanes and both directions must be accepted for the count to be considered complete. For classification counts, all lanes must be accepted for volume, speed, and classification for the count station for the count to be considered complete.

Scheduled counts that are rejected must be re-counted unless otherwise directed.

APPENDIX A

Traffic Count Data Formats

Traffic Count Data Formats

NYSDOT Equipment and Software

The Main Office, and the Regional Offices of NYSDOT, use the following equipment for short count traffic volume, vehicle classification, and speed data collection:

Diamond Traffic Products, models Unicorn & Phoenix
MetroCount MC5805
MetroCount 5600

The Main Office and Regional Offices use TRAFMAN (Diamond Traffic Products), Road Reporter (International Road Dynamics), and Traffic Executive (MetroCount) software to read traffic count data from electronic counters and create the required output format files. The Main Office may provide assistance with these counters and programs pertaining to the creation of NYSDOT format files.

A description of each field plus sample outputs for volume, vehicle classification, speed classification, and length classification formats are provided in this section. Examples are provided in NYSDOT 4.04 Format. Format 4.00 and 4.08 is also acceptable. Other formats may be accepted with written approval from the Main Office. Questions regarding the selection of appropriate codes and values for data fields may be directed to either the Main Office or the Regional Offices.

The Main Office of the New York State Department of Transportation, noted below, should be contacted for detailed instructions when necessary to properly create the output format.

Traffic Monitoring Program Contacts

REGION #	TELEPHONE #	REGION#	TELEPHONE #
1	(518) 485-5054	7	(315) 785-7901
2	(315) 793-2691	8	(845) 431-5731
3	(315) 428-4565	9	(607) 721-3514
4	(585) 272-4803	10	(631) 952-6125
5	(716) 847-3580	11	(718) 482-4555
6	(607) 324-8426	Main Office	(518) 457-1965

Presented below are the header fields for the various traffic data files that may be edited, and the associated codes that may be used.

Please consider these annotations in the following text:

indicates data obtained from Traffic Count Header Files

<u>Field Name</u>	<u>Field Description</u>
<i>Key Name</i>	The name of the file to which the traffic data will be written. This field reflects the Site Reference (ID) number used when the counter is placed in the field, represented by Region/County and 4-digit station number plus federal direction code and lane code of the first count channel.
<i>Date Created</i>	Date file was written (Date counter/module was dumped).
<i>Site Reference</i>	A 6-digit code which is derived from the first 6 digits of the Key Name, according to the following rules: Position 1 : NYSDOT Region Code Position 2 : NYSDOT County Code Positions 3-6 : Station Number Stations should be found in the Traffic Count Header Files.
<i>Recording Start Date</i>	Month/Day/Year format. Date corresponding to first line of data.
<i>Recording Start Hour</i>	Hour (24:00) format. Traffic data corresponding to the first partial hour is not recorded. The first recorded (saved) interval always starts at the top of the hour (i.e., recorded minute values are always zero), regardless of recording mode or interval length configurations.
<i>Count Taken By Organization</i>	A 3-character code designating the organization responsible for counter layout and operation.
<i>Counter Operator Initials</i>	A 3-character user code identifying the person working for the <i>Count Taken By Organization</i> , who set out the counter.
<i>Count Processing Organization</i>	A 3-character code designating the organization responsible for processing and accepting the count data. <i>Space-filled by dumping software, filled in by T.C.E.</i>
<i>Count Processor Initials</i>	A 3-character user code identifying the person working for the <i>Count Processing Organization</i> , responsible for verifying the count. <i>Space-filled by dumping software, filled in by T.C.E.</i>

Route No.

This field must be as follows for state touring routes:

Position **1-3**: Numeric part of route number, right justified, blank filled.

Position **4**: Alphabetic part of route number (if any) or blank – no other entry is permitted in this position.

Route Signing

Code which best represents the manner the highway segment is signed (i.e. Route #) with markers.

0 Not Signed **2** U S **5** County
1 Interstate **3** N Y

End Milepoint

This field contains county order control and ending mile point.

Position **1-3**: County order control

Position **4-7**: Ending mile point with two decimals

Reference Marker

This field contains the reference marker, if applicable, describing the 0.1 mile section where the counter is placed. A value is only included if different from the prior count for the station. If no difference in this value occurs, or a reference marker is not applicable at the location, this field is left BLANK. Coding of this 12 digit value is as shown on the reference marker, including blanks.

Factor Group

Must be a valid Factor Group code (30, 40, or 60).

Functional Class

This field must be coded using the following functional classifications:

R U R A L	01	<i>Principal Arterial - Interstate</i>	11	U R B A N
	02	<i>Principal Arterial - Other Freeway/Expressway</i>	12	
	04	<i>Principal Arterial - Other</i>	14	
	06	<i>Minor Arterial</i>	16	
	07	<i>Major Collector</i>	17	
	08	<i>Minor Collector</i>	18	
	09	<i>Local</i>	19	

Batch ID	This field identifies the Batch Name in which this count was submitted. <i>Space-filled by dumping software. It is filled in by T.C.E. software by combining Region/Agency code with current designated working folder.</i>																										
# BIN	This field is coded with the Bridge Identification Number of a bridge on that highway section, if applicable. Otherwise, it is left blank.																										
# RRxing	This field is coded with railroad crossing code on that highway section, if applicable. Otherwise, it is left blank.																										
# From-To	Beginning and Ending Description of this highway section. If not defined in a header file (i.e. a 9xxx station), the descriptions are manually entered. For example, beginning description: Easy St., ending description: 84I.																										
# County Road Number	The Road Number represents the County Highway Number. Otherwise, it is blank.																										
# Road or Street Name	Common local road/street name.																										
# Geographic Code	A unique four-digit geographic code identifying the New York State minor civil division (municipality) in which the count was taken.																										
# NHS	Single digit National Highway System code. Blank Non-NHS Y NHS																										
# Local Jurisdiction Code	Two-digit Highway Section Jurisdiction: <table> <tr> <td>1 NYSDOT</td><td>50 Indian Tribal Government</td></tr> <tr> <td>2 County</td><td>60 Other Federal Agencies</td></tr> <tr> <td>3 Town</td><td>62 Bureau of Indian Affairs</td></tr> <tr> <td>4 City or Village</td><td>63 Bureau of Fish and Wildlife</td></tr> <tr> <td>11 State Parks</td><td>64 U.S. Forest Service</td></tr> <tr> <td>12 Local Parks</td><td>66 National Park Service</td></tr> <tr> <td>21 Other State Agencies</td><td>70 Corps of Engineers (Civil)</td></tr> <tr> <td>25 Other Local Agencies</td><td>71 Corps of Engineers (Military)</td></tr> <tr> <td>26 Private (other than railroad)</td><td>72 Air Force</td></tr> <tr> <td>27 Railroad</td><td>73 Navy / Marines</td></tr> <tr> <td>31 NYS Thruway</td><td>74 Army</td></tr> <tr> <td>32 Other Toll Authority</td><td>80 Other</td></tr> <tr> <td>40 Other Public Instrumentality (i.e. Airport)</td><td></td></tr> </table>	1 NYSDOT	50 Indian Tribal Government	2 County	60 Other Federal Agencies	3 Town	62 Bureau of Indian Affairs	4 City or Village	63 Bureau of Fish and Wildlife	11 State Parks	64 U.S. Forest Service	12 Local Parks	66 National Park Service	21 Other State Agencies	70 Corps of Engineers (Civil)	25 Other Local Agencies	71 Corps of Engineers (Military)	26 Private (other than railroad)	72 Air Force	27 Railroad	73 Navy / Marines	31 NYS Thruway	74 Army	32 Other Toll Authority	80 Other	40 Other Public Instrumentality (i.e. Airport)	
1 NYSDOT	50 Indian Tribal Government																										
2 County	60 Other Federal Agencies																										
3 Town	62 Bureau of Indian Affairs																										
4 City or Village	63 Bureau of Fish and Wildlife																										
11 State Parks	64 U.S. Forest Service																										
12 Local Parks	66 National Park Service																										
21 Other State Agencies	70 Corps of Engineers (Civil)																										
25 Other Local Agencies	71 Corps of Engineers (Military)																										
26 Private (other than railroad)	72 Air Force																										
27 Railroad	73 Navy / Marines																										
31 NYS Thruway	74 Army																										
32 Other Toll Authority	80 Other																										
40 Other Public Instrumentality (i.e. Airport)																											
Number of Channels	Number of channels contained in the file for each recording interval																										
Recording Intervals	Time Interval for which counts are taken (i.e. 15 min., 60 min., etc.)																										

<i>Recorder Loc.</i>	Description of the specific placement of the recorder used to collect the data in each file. This description lists a distance reference from the nearest intersection (by direction). It is NOT a repeat of the count's Road/Street name or From-To. This description must be consistent with the Location Description as described in Appendix C	
<i>Counter No.</i>	Four-digit serial number on the recorder.	
<i>Module No.</i>	Last four digits of the serial numbers on the module (for machines that utilize a module)	
<i>Recording Mode</i>	Recording mode used to collect data. This code is a 2-digit code generated by the recorder as follows:	
	10	Loop Volume
	14	Tube/Hose Volume
	28	Length Classifier, Loop Input, Imperial
	30	Speed Classifier, Loop Input, MPH
	31	Speed Classifier, Tube Input, MPH
	44	Axle Classifier, Tube Input
	45	Time Stamped Recording mode
	50	Other Automated Count
	90	Manual Count
<i>Vehicle/Axle Code</i>	1	Vehicle count
	2	Axle/2 count
<i>Direction of Channels</i>	NYS Traffic count direction code.	

NYS Direction of Travel Codes

- 1** North or East
- 2** South or West
- 3** Total count, either directions, or 1-way streets/ramps
- 6** North or East (lane count)
- 7** South or West (lane count)

Federal Direction of Travel Codes

- 1** North
- 3** East
- 5** South
- 7** West
- 9** North-South Combined
- 0** East-West Combined

Lane Number

- 1-9** Individual Lanes being monitored (by direction, from right to left in direction of travel)
- One lane in a direction: travel lane = 1
 - Two lanes in a direction: travel lane = 1, passing lane = 2
 - Three lanes in a direction: travel lane = 1, center lane = 2, passing lane = 3
 - Four lanes in a direction: travel lane = 1, first center lane = 2, second center lane = 3, passing lane = 4, etc.
- 0** Multiple lanes represented in a single channel.

All file formats represent sequential, ASCII disk files.

VOLUME COUNT FORMAT (<KEYNAME>.VOL)

"4.04","13804030"," 1/30/03","138040","12/ 3/02","13:00","12/7/02","08:05","GRN","DSK","GRN","BHM","R01GRN-
WW23"

" 81 ","5","0211697"," 81 13011063","40","02","0154","123456A","6666","0","87654321"," "

"RT 32 GREENVILLE ","HIGH HILL RD ","0330","Farm to Market ","0519","0","4 "

"1","14","2","00:60","01"

"3"," ","1234","6543","50 FT SOUTH OF ELM ST. ","0"," "," 1"

"NOTES ON CHANNEL A "

" "

06810737080209680961074805980445039802650161*

007000530041004200410079035307910663052405870671063806890758087809490918073006430479048402470164*

009200430022001800320075034107600661048405200564058006180720079909260970070605930460041202440189*

006100560030002500340083033407950661049704870609062706400766083709340919075706150460041602460208*

00950042003900300038007903510704 *

xxxx

Description of Header Fields in Volume Output File example:

POS.	Record 1	
1-6	"4.04"	- Current Output Format Version Number
8-17	"13804030"	- 'Keyname' Output disk Filename (.VOL assumed)
19-28	" 1/30/03"	- Date this file was created
30-37	"138040"	- Site Ref. Number
39-48	"12/ 3/02"	- Date corresponding to first traffic data record
50-56	"13:00"	- Recording Start Hour
58-67	"12/ 7/02"	- Date Recorder stopped counting
69-75	"08:05"	- Time Recorder stopped counting
77-81	"GRN"	- Count Taken By Organization
83-87	"DSK"	- Count Operator's Initials
89-93	"GRN"	- Count Processed By Organization
95-99	"BHM"	- Count Processor's Initials
101-113	"R01GRN-WW23"	- Batch ID
	Record 2	
1-6 #	" 81 "	- Route Number
8-10 #	"5"	- Route Signing
12-20 #	"0211697"	- End Milepoint
22-35	" 81 13011063"	- Reference Marker (Milepost)
37-40 #	"40"	- Factor Group
42-45 #	"02"	- Functional Class
47-52 #	"0154"	- Section Length
54-62 #	"123456A"	- Bridge Identification Number
64-69	"6666"	- Continuous Count Station Number
71-73	"0"	- Header Data Flag
75-84 #	"87654321"	- HPMS Sample Number
86-94 #	" "	- Railroad Crossing Number
	Record 3	
1-30 #	"RT 32 GREENVILLE@"	- Section Beginning Description
32-61 #	"HIGH HILL RD@"	- Section End Description
63-67 #	"0330"	- Road Number
70-86 #	"Farm to Market "	- Road or Street Name
88-93 #	"0519"	- Geographic Code
95-97 #	"0"	- NHS code
99-102 #	"4 "	- Local Jurisdiction
	Record 4	
1-3	"1"	- Number of Channels
5-8	"14"	- Equipment Recording Mode
10-12	"2"	- 1=Vehicles, 2=Axles
14-20	"00:60"	- Recording Time Interval
22-25	"01"	- # Data Values per Recording Interval

Record 5		
1-3	"3"	- Direction Channel A
5-7	" "	- Direction Channel B, N/A this case
9-14	"1234"	- Recorder Serial Number
16-21	"6543"	- Module Serial Number
23-52	"50 FT SOUTH OF ELM ST. "	- Specific Recorder Placement
54-56	"0"	- Federal Dir Code, Chan A
58-60	" "	- Federal Dir Code, Chan B
62-65	" 1"	- Total lanes in this direction

Record 6		
1-52	"NOTES ON CHANNEL A	"

Record 7		
1-52	" "	- NOTES ON CHANNEL B, N/A this case If Channel B applicable, field would hold 50 character description as in Record 6 above.

- Indicates that the data item came from the Traffic Header Files.

The subsequent data records are the hourly interval data records. Each record represents one day's worth of counts (midnight to midnight) per channel.

Each Record = 24 hourly Interval counts
Each Interval = 4 digits

The first data record represents counts taken on 12/3/02. In the example, the interval count for starting hour 13 (13:00 - 14:00) was the first complete interval recorded; therefore, it is the first interval for which data was written to the output file. The first recorded interval always starts at the top of the hour, regardless of interval length recording configuration. The illustration shown is for a single channel count, therefore, subsequent records represent successive calendar days of 24 hourly interval counts. If this was a two-channel count, the second record would be counts for channel #2 on 12/3/02 (i.e., each day would be represented by every two records worth of data.

The last character of each data record is an asterisk "*".

The last record in the file is always "xxxx", left justified.

AXLE CLASSIFICATION COUNT FORMAT (<KEYNAME>.AXL)

```
"4.04","75803131","10/16/02","758031","10/04/02","13:00","10/07/02","10:05","TST","ATP","R07","BHS","R0
7-WW23"
" 11B","5","0110123"," 11B75011005","30","16","0123","123456A","  ","0","87654321","  "
"RT 11 POTSDAM      ","POTSDAM E LN      ","0330","Farm to Market ","0519","0","4 "
"1","44","1","00:60","14"
"1","  ","4649","1041","REC PLACED HERE      ","3","  "," 1"
"3","  ","1","  ","P","  "
"NOTES ON CHANNEL A      "
" "
0143,0000,0102,0029,0000,0006,0002,0001,0002,0001,0000,0000,0000,0000, Interval 1 pm - 2 pm
0186,0000,0131,0035,0001,0008,0003,0000,0004,0003,0001,0000,0000,0000,
0217,0000,0171,0033,0003,0004,0004,0000,0002,0000,0000,0000,0000,0000,
0242,0001,0176,0058,0001,0003,0001,0001,0000,0001,0000,0000,0000,0000,
0197,0003,0151,0026,0000,0009,0000,0000,0002,0006,0000,0000,0000,0000,
0138,0001,0091,0034,0004,0006,0000,0000,0002,0000,0000,0000,0000,0000,
0108,0000,0093,0014,0000,0000,0000,0000,0000,0001,0000,0000,0000,0000,
0086,0000,0072,0010,0000,0003,0000,0000,0000,0001,0000,0000,0000,0000,
0087,0001,0072,0013,0000,0000,0000,0000,0000,0000,0000,0001,0000,0000,
0048,0000,0040,0008,0000,0000,0000,0000,0000,0000,0000,0000,0000,0000,
0038,0000,0027,0009,0001,0001,0000,0000,0000,0000,0000,0000,0000,0000,
0018,0000,0014,0004,0000,0000,0000,0000,0000,0000,0000,0000,0000,0000, e.g., 24 Hours
0009,0000,0008,0001,0000,0000,0000,0000,0000,0000,0000,0000,0000,0000,
0006,0000,0003,0001,0000,0000,0001,0000,0000,0001,0000,0000,0000,0000,
0003,0000,0001,0000,0000,0001,0000,0000,0000,0001,0000,0000,0000,0000,
0020,0000,0015,0004,0000,0000,0000,0000,0000,0001,0000,0000,0000,0000,
0025,0000,0008,0011,0000,0001,0002,0000,0000,0002,0000,0001,0000,0000,
0047,0000,0031,0011,0001,0002,0001,0000,0001,0000,0000,0000,0000,0000,
0090,0000,0055,0022,0003,0002,0001,0000,0001,0005,0000,0001,0000,0000,
0114,0000,0073,0026,0002,0005,0001,0000,0001,0006,0000,0000,0000,0000,
0090,0000,0054,0025,0002,0004,0003,0000,0002,0000,0000,0000,0000,0000,
0138,0000,0096,0021,0001,0009,0002,0000,0005,0004,0000,0000,0000,0000,
0128,0000,0089,0027,0000,0004,0003,0000,0003,0002,0000,0000,0000,0000,
0134,0000,0103,0018,0001,0005,0003,0000,0003,0001,0000,0000,0000,0000,
xxxx
```

Description of Header Fields in Axle Classification Output File Example:

Record 1		
Pos		
1-6	"4.04"	- Current Output Format Version Number
8-17	"75803131"	- 'Keyname' Output disk Filename (.AXL assumed)
19-28	"10/16/02"	- Date this file was created
30-37	"758031"	- Site Ref. Number
39-48	"10/04/02"	- Date corresponding to first traffic data record
50-56	"13:00"	- Recording Start Hour
58-67	"10/07/02"	- Date Recorder stopped counting
69-75	"10:05"	- Time Recorder stopped counting
77-81	"TST"	- Count Taken By Organization
83-87	"ATP"	- Count Operator's Initials
89-93	"R07"	- Count Processed By Organization
95-99	"BHS"	- Count Processor's Initials
101-113	"R07-WW23"	- ZIP Batch ID
Record 2		
1- 6 #	" 11B"	- Route Number
8-10 #	"5"	- Route Signing
12-20 #	"0110123"	- End Milepoint
22-35	" 11B75011005"	- Reference Marker (Milepost)
37-40 #	"30"	- Factor Group
42-45 #	"16"	- Functional Class
47-52 #	"0123"	- Section Length
54-62 #	"123456A"	- Bridge Identification Number
64-69	" "	- Continuous Count Station Number
71-73	"0"	- Header Data Flag
75-84 #	"87654321"	- HPMS Sample Number
86-94 #	" "	- Railroad Crossing Number
Record 3		
1-30 #	"RT 11 POTSDAM@"	- Section Beginning Description
32-61 #	"POTSDAM E LN@"	- Section End Description
63-67 #	"0330"	- Road Number
70-86 #	"Farm to Market A"	- Road or Street Name
88-93 #	"0519"	- Geographic Code
95-97 #	"0"	- NHS code
99-102 #	"4 "	- Local Jurisdiction
Record 4		
1- 3	"1"	- Number of Channels
5- 8	"44"	- Equipment Recording Mode
10-12	"1"	- 1=Vehicles, 2=Axles
14-20	"00:60"	- Recording Time Interval
22-25	"14"	- # Data Values per Recording Interval
Record 5		
1- 3	"1"	- Direction Channel A (NYS Code)
5- 7	" "	- Direction Channel B (NYS Code, N/A this case)
9-14	"4649"	- Recorder Serial Number
16-21	"1041"	- Module Serial Number
23-52	"REC PLACED HERE"	- Specific Recorder Placement
54-56	"3"	- Federal Dir Code, Channel A
58-60	" "	- Federal Dir Code, Channel B
62-65	" 1"	- Total lanes in this direction

	Record 6	(Present for all classification counts only)
1- 3	"3"	- Federal Directional Code, Channel A
5- 7	" "	- Federal Directional Code, Channel B (N/A here)
9-11	"1"	- Lane Code Channel A (0 = Multiple, 1-9 = Lane #)
13-15	" "	- Lane Code Channel B (0 = Multiple, 1-9 = Lane #)
17-19	"P"	- (F)ull or (P)artial direction, Channel A
21-23	" "	- (F)ull or (P)artial direction, Channel B
	Record 7	
1-52	"NOTES ON CHANNEL A	"
	Record 8	
1-52	" "	- Notes on Channel B, N/A this case

- Indicates that the data item may be available in the Traffic Header Files.

The subsequent data records are organized such that each record represents one full interval's data. In the example the interval count for starting hour 13 (1:00 p.m. - 2:00 p.m.) was the first complete interval recorded, therefore, the first interval for which data was written to the output file. The first recorded interval always starts at the top of the hour, regardless of interval length recording configuration. The number of count bins for each record is given by the last data item in record 4 (# Data Values per Recording Interval). The first bin count represents the total volume for that interval, subsequent counts are bin counts corresponding to the axle classifications used (in this case, FHWA's Scheme F).

If this was a two-channel count, the first record would represent interval 1, channel 1 and the second record represents interval 1, channel 2.

The last character of each BIN field is a comma ",".

The last record in the file is always "xxxx", left justified.

SPEED CLASSIFICATION COUNT FORMAT (<KEYNAME>.SPD)

"4.04","33008231","11/15/02","330082","10/27/02","14:00","10/29/02","10:50","R01","ATP","R01","BHM","R01-WW23 " "
 " 5 ","2","0811053"," 5 33081295","30","12","0155","123456A"," " ,"0","87654321"," " "
 "RT 174 CAMILLUS " ,"JCT NEWPORT RD " ,"0330","Farm to Market " ,"0519","0","4 " "
 "1","24","1","00:60","16"
 "1"," " ,"4321","6178","REC PLACED HERE " ,"3"," " ," 1"
 "3"," " ,"1"," " ,"P"," " ,"55"
 "020","025","030","035","040","045","050","055","060","065","070","075","080","085","999"
 "RT 5 SPEED 1STQTR89 - EB TRAVEL LANE " "
 " "

0263,0000,0000,0000,0000,0000,0000,0000,0000,0001,0005,0031,0097,0095,0031,0003,
 0267,0000,0000,0000,0000,0000,0000,0000,0001,0000,0012,0037,0081,0093,0038,0005,
 0315,0000,0000,0000,0000,0000,0000,0000,0001,0000,0000,0009,0032,0100,0123,0047,0003,
 0303,0000,0000,0000,0000,0000,0000,0000,0001,0006,0034,0081,0136,0037,0008,
 0287,0000,0000,0000,0000,0000,0000,0000,0001,0007,0049,0111,0088,0027,0004,
 0284,0000,0000,0000,0000,0000,0000,0000,0002,0002,0009,0064,0109,0081,0016,0001,
 0165,0000,0000,0000,0000,0000,0000,0000,0001,0010,0023,0069,0051,0009,0002,
 0185,0000,0000,0000,0000,0000,0000,0001,0000,0001,0008,0055,0061,0047,0011,0001,
 0150,0000,0000,0000,0000,0000,0000,0000,0003,0004,0025,0055,0051,0009,0003,
 0133,0000,0000,0000,0000,0000,0000,0000,0002,0001,0006,0032,0036,0039,0015,0002,
 0077,0000,0000,0000,0000,0000,0000,0000,0000,0000,0002,0020,0020,0024,0011,0000,
 0026,0000,0000,0000,0000,0000,0000,0000,0000,0000,0005,0008,0008,0005,0000,
 0016,0000,0000,0000,0000,0000,0000,0000,0000,0000,0001,0005,0002,0008,0000,0000,
 0017,0000,0000,0000,0000,0000,0000,0000,0000,0000,0001,0004,0005,0004,0003,0000,
 0026,0000,0000,0000,0000,0000,0000,0000,0000,0000,0001,0005,0010,0008,0002,0000,
 0065,0000,0000,0000,0000,0000,0000,0000,0001,0002,0009,0022,0024,0006,0001,
 0113,0000,0000,0000,0000,0000,0000,0000,0001,0003,0019,0042,0038,0010,0000,
 0176,0000,0000,0000,0000,0000,0000,0000,0001,0000,0004,0015,0055,0068,0026,0007,
 0225,0000,0000,0002,0000,0000,0000,0000,0000,0002,0004,0025,0041,0100,0040,0011,
 0234,0000,0000,0001,0000,0000,0000,0000,0000,0001,0002,0015,0078,0089,0041,0007,
 0264,0000,0000,0000,0000,0000,0000,0000,0001,0001,0006,0042,0093,0087,0028,0006,
 0293,0000,0000,0000,0000,0000,0000,0001,0003,0003,0009,0044,0098,0102,0028,0005,
 0328,0000,0000,0000,0000,0000,0000,0000,0000,0005,0036,0123,0123,0038,0003,
 0256,0000,0000,0000,0000,0000,0000,0000,0002,0006,0034,0093,0097,0019,0005,
 0225,0000,0000,0000,0000,0000,0000,0000,0001,0000,0004,0032,0065,0084,0032,0007,
 0234,0000,0000,0000,0000,0000,0000,0000,0002,0002,0008,0037,0069,0082,0031,0003,

e.g., 24 Hours

xxxx

Description of Header Fields in Speed Classification Output File Example:

Record 1		
Pos		
1- 6	"4.04"	- Current Output Format Version Number
8-17	"33008231"	- Output disk Filename (.SPD assumed)
19-28	"11/15/02"	- Date this file was created
30-37	"330082"	- Site Ref. Number
39-48	"10/27/02"	- Date corresponding to first traffic data record
50-56	"14:00"	- Recording Start Hour
58-67	"10/29/02"	- Date Recorder stopped counting
69-75	"10:50"	- Time Recorder stopped counting
77-81	"R01"	- Count Taken By Organization
83-87	"ATP"	- Count Operator's Initials
89-93	"R01"	- Count Processed By Organization
95-99	"BHM"	- Count Processor's Initials
101-113	"R01-WW23 "	- Batch ID
Record 2		
1- 6 #	" 5 "	- Route Number
8-10 #	"2"	- Route Signing
12-20 #	"0811053"	- End Milepoint
22-35	" 5 33081295"	- Reference Marker (Milepost)
37-40 #	"30"	- Factor Group
42-45 #	"12"	- Functional Class
47-52 #	"0155"	- Section Length
54-62 #	"123456A"	- Bridge Identification Number
64-69	" "	- Continuous Count Station Number
71-73	"0"	- Header Data Flag
75-84 #	"87654321"	- HPMS Sample Number
86-94 #	" "	- Railroad Crossing Number
Record 3		
1-30 #	"RT 174 CAMILLUS"	- Section Beginning Description
32-61 #	"JCT NEWPORT RD"	- Section End Description
63-67 #	"0330"	- Road Number
70-86 #	"Farm to Market A"	- Road or Street Name
88-93 #	"0519"	- Geographic Code
95-97 #	"0"	- NHS code
99-102 #	"4 "	- Local Jurisdiction
Record 4		
1- 3	"1"	- Number of Channels
5- 8	"24"	- Equipment Recording Mode
10-12	"1"	- 1=Vehicles, 2=Axles
14-20	"00:60"	- Recording Time Interval
22-25	"16"	- # Data Values per Recording Interval
Record 5		
1- 3	"1"	- Direction Channel A (NYS Code)
5- 7	" "	- Direction Channel B (NYS Code, N/A this case)
9-14	"4321"	- Recorder Serial Number
16-21	"6178"	- Module Serial Number
23-52	"REC PLACED HERE"	- Specific Recorder Placement
54-56	"3"	- Federal Direction Code, Channel A
58-60	" "	- Federal Direction Code, Channel B
62-65	" 1"	- Total lanes in this direction

Record 6 (Present for all speed counts only)		
1- 3	"3"	- Federal Directional Code, Channel A
5- 7	" "	- Federal Directional Code, Channel B (N/A here)
9-11	"1"	- Lane Code Channel A (0 = Multiple, 1-9 = Lane #)
13-15	" "	- Lane Code Channel B (0 = Multiple, 1-9 = Lane #)
17-19	"P"	- (F)ull or (P)artial direction, Channel A
21-23	" "	- (F)ull or (P)artial direction, Channel B
25-28 #	"55"	- Posted Speed Limit

Record 7 (Present for all speed counts only)

For All Speed Limits:

1- 5	"020"	- High Speed Threshold, Bin 1
7-11	"025"	- High Speed Threshold, Bin 2
13-17	"030"	- High Speed Threshold, Bin 3
19-23	"035"	- High Speed Threshold, Bin 4
25-29	"040"	- High Speed Threshold, Bin 5
31-35	"045"	- High Speed Threshold, Bin 6
37-41	"050"	- High Speed Threshold, Bin 7
43-47	"055"	- High Speed Threshold, Bin 8
49-53	"060"	- High Speed Threshold, Bin 9
55-59	"065"	- High Speed Threshold, Bin 10
61-65	"070"	- High Speed Threshold, Bin 11
67-71	"075"	- High Speed Threshold, Bin 12
73-77	"080"	- High Speed Threshold, Bin 13
79-83	"085"	- High Speed Threshold, Bin 14
85-89	"999"	- High Speed Threshold, Bin 15

Record 8

1-52	"RT 5 SPEED 1STQTR89 - EB TRAVEL	"
------	----------------------------------	---

Record 9

1-52	" "	- Notes on Channel B, N/A this case
------	-----	-------------------------------------

- Indicates that the data item may be available in the Traffic Count Header Files.

The subsequent data records are organized such that each record represents one full interval. In the example the interval count for starting hour 14 (2:00 p.m. - 3:00 p.m.) was the first complete interval recorded, therefore, the first interval for which data was written to the output file. The first recorded interval always starts at the top of the hour, regardless of interval length recording configuration. The number of count bins for each record is given by the last data item in record 4 (# Data Values per Recording Interval). The first bin count represents the total volume for that interval, subsequent counts are bin counts corresponding to the speed ranges used.

If this was a two-channel count, the first record would represent interval 1, channel 1 and the second record represents interval 1, channel 2.

The last character of each BIN field is a comma ",".

The last record in the file is always "xxxx", left justified.

LENGTH CLASSIFICATION COUNT FORMAT (<KEYNAME>.LTH)

```
"4.04","11021831","10/26/04","110218","10/23/04","11:00","10/25/04","10:55","R01","ATP","R01","BHM","R01-WW23  "
" 85A","2","0110378"," 85A11011032","30","17","0071","123456A","  ", "0","87654321","  "
"RT 156          ", "RT 155          ", "0330","Farm to Market ", "0519","0","4  "
"1","28","1","00:60","05"
"1","  ", "5432","4199","REC PLACED HERE          ", "3","  ", " 1"
"3","  ", "1","  ", "F","  "
"RT 85A LENGTH CLASS - EB TRAVEL LANE          "
"  "

0163,0092,0054,0015,0002,
0179,0111,0064,0003,0001,
0205,0119,0077,0009,0000,
0253,0142,0100,0010,0001,
0327,0195,0118,0014,0000,
0539,0351,0177,0009,0002,
0525,0348,0170,0006,0001,
0345,0256,0084,0005,0000,
0238,0176,0057,0005,0000,
0160,0114,0045,0001,0000,
0146,0112,0034,0000,0000,   e.g., 24 Hours
0097,0070,0026,0000,0001,
0050,0038,0012,0000,0000,
0033,0024,0009,0000,0000,
0010,0009,0001,0000,0000,
0007,0006,0001,0000,0000,
0007,0004,0003,0000,0000,
0006,0003,0002,0001,0000,
0010,0006,0004,0000,0000,
0096,0040,0056,0000,0000,
0253,0154,0083,0014,0002,
0196,0094,0081,0021,0000,
0153,0073,0067,0012,0001,
0183,0085,0083,0012,0003,
0209,0091,0100,0016,0002,
0227,0128,0093,0006,0000,
0237,0146,0077,0011,0003,
xxxx
```

Description of Header Fields in Length Classification Output File Example:

Pos	Record 1	
1- 6	"4.04"	- Current Output Format Version Number
8-17	"11021831"	- Output disk Filename (.LTH assumed)
19-28	"10/26/04"	- Date this file was created
30-37	"110218"	- Site Ref. Number
39-48	"10/23/04"	- Date corresponding to first traffic data record
50-56	"11:00"	- Recording Start Hour
58-67	"10/25/04"	- Date Recorder stopped counting
69-75	"10:55"	- Time Recorder stopped counting
77-81	"R01"	- Count Taken By Organization
83-87	"ATP"	- Count Operator's Initials
89-93	"R01"	- Count Processed By Organization
95-99	"BHM"	- Count Processor's Initials
101-113	"R01-WW23 "	- Batch ID
	Record 2	
1- 6 #	" 85A"	- Route Number
8-10 #	"2"	- Route Signing
12-20 #	"0110378"	- End Milepoint
22-35	" 85A11011032"	- Reference Marker (Milepost)
37-40 #	"30"	- Factor Group
42-45 #	"17"	- Functional Class
47-52 #	"0071"	- Section Length
54-62 #	"123456A"	- Bridge Identification Number
64-69	" "	- Continuous Count Station Number
71-73	"0"	- Header Data Flag
75-84 #	"87654321"	- HPMS Sample Number
86-94 #	" "	- Railroad Crossing Number
	Record 3	
1-30 #	"RT 156"	- Section Beginning Description.
32-61 #	"RT 155"	- Section End Description
63-67 #	"0330"	- Road Number
70-86 #	"Farm to Market A"	- Road or Street Name
88-93 #	"0519"	- Geographic Code
95-97 #	"0"	- NHS code
99-102 #	"4 "	- Local Jurisdiction
	Record 4	
1- 3	"1"	- Number of Channels
5- 8	"28"	- Equipment Recording Mode
10-12	"1"	- 1=Vehicles, 2=Axles
14-20	"00:60"	- Recording Time Interval
22-25	"05"	- # Data Values per Recording Interval
	Record 5	
1 -3	"1"	- Direction Channel A (NYS Code)
5 -7	" "	- Direction Channel B (NYS Code, N/A this case)
9-14	"5432"	- Recorder Serial Number
16-21	"4199"	- Module Serial Number
23-52	"REC PLACED HERE"	- Specific Recorder Placement
54-56	"3"	- Federal Direction Code, Channel A
58-60	" "	- Federal Direction Code, Channel B
62-65	" 1"	- Total lanes in this direction

	Record 6	(Present for all classification counts only)
1- 3	"3"	- Federal Directional Code, Channel A
5- 7	" "	- Federal Directional Code, Channel B (N/A here)
9-11	"1"	- Lane Code Channel A (0 = Multiple, 1-9 = Lane #)
13-15	" "	- Lane Code Channel B (0 = Multiple, 1-9 = Lane #)
17-19	"F"	- (F)ull or (P)artial direction Channel A
21-23	" "	- (F)ull or (P)artial direction Channel B

	Record 7	
1-52	"RT 85A LENGTH CLASS - EB TRAVEL	"

	Record 8	
1-52	" "	- Notes on Channel B, N/A this case

- Indicates that the data item may be available in the Traffic Count Header Files.

The subsequent data records are organized such that each record represents one full interval of data. In the example the interval count for starting hour 11 (11:00 a.m. - 12:00 p.m.) was the first complete interval recorded, therefore, the first interval for which data was written to the output file. The first recorded interval always starts at the top of the hour, regardless of interval length recording configuration. The number of count bins for each record is given by the last data item in record 4 (# Data Values per Recording Interval). The first bin count represents the total volume for that interval, subsequent counts are the bin counts corresponding to the length classification used.

If this was a two-channel count, the first record would represent interval 1, channel 1 and the second record represents interval 1, channel 2.

The last character of each BIN field is a comma ",".

The last record in the file is always "xxxx", left justified.

APPENDIX B

NYSDOT Traffic Monitoring Traffic Count Safety Standards

Introduction

Traffic monitoring, whether laying road tubes, installing non-intrusive devices, or simply placing counters in permanent boxes, is work that is conducted on or near roadways with varying traffic volumes and speeds. Safety of the traffic count crews, and the motoring public is paramount in these situations. Most traffic monitoring equipment set ups take a short time duration to complete. It is recognized that setting up standard safety work zones and warning distances can result in more exposure of the count crew to traffic than is required by the actual equipment set ups to be completed. Because of this the most effective safety measures may be minimalist in nature. The determination of the best and most practical measures to be taken, therefore, must be site specific and made by an experienced and competent member of the traffic count crew.

Competent Person

The Contractor shall designate a work zone traffic control competent person on each crew who has the primary responsibility and sufficient authority for implementing the work zone traffic control plan and other safety and mobility aspects as necessary based on an evaluation of site specific conditions including, but not limited to, speed and volume of traffic, duration of the work, sight distance, and adjacent land use. The Contractor's work zone traffic control competent person shall be appropriately experienced in traffic count installation and maintenance work and adequately trained in traffic control operations by recognized training programs, including the American Traffic Safety Services Association (ATSSA) "Traffic Control Supervisor", the National Safety Council, unions, or construction industry associations, or by an individual instructor from such a program in accordance with the level of decisions that the individual will be required to make, reflecting current industry practices and Department requirements.

The "competent person" shall have the authority and expertise to determine if the installation cannot be done safely due to prevailing site specific conditions and to remove the crew and reschedule the work, upgrade traffic control, or relocate the installation to a more favorable site within the bounds of the current NYSDOT Traffic Monitoring Standards. Any actions not consistent with the originally requested count type and location, however, must be approved by the NYSDOT Traffic Monitoring Section.

Site Conditions

Site conditions which could adversely affect safety for either the workers or the traveling public shall be considered before occupying the highway right of way. Such conditions include but are not limited to:

- Shoulder width or availability to park the work vehicle outside of the roadway
- Traffic volume and speed
- Alignment and sight distance
- Proximity of intersections, driveways, and ramps

Shoulder Width

A work vehicle encroaching on a shoulder shall be delineated by cones a minimum of 28 inches high and placed in a taper from the outside edge of the shoulder to the inside edge of the work vehicle, and a W20-1 ROAD WORK AHEAD, or a W21-1 WORKER SYMBOL sign and a W21-5 SHOULDER WORK or a W21-5a, RIGHT/LEFT SHOULDER CLOSED sign shall be placed in advance of the work vehicle as shown on drawing TC-C4 (as referenced below). A barrier vehicle may be substituted for the cone taper and warning signs can be mounted on the rear of the barrier vehicle as shown on drawing T ASD-C1 (as referenced in the NYSDOT Work Zone Traffic Control Manual). If the shoulder is not wide enough to park the work vehicle safely, the competent person should consider an alternate location with adequate shoulder width or horizontal clearance where the appropriate data can be collected. Work vehicle encroachments into a travel lane should be avoided to the extent practicable. However, if allowed on an exception basis by the competent person, any work vehicle encroaching on a travel lane shall be preceded by an appropriate advance warning sign and a barrier vehicle. If a minimum lane width of 10 feet cannot be provided as shown on T ASD-C1, upgraded traffic control such as lane closures or lane shifts shall be implemented.

Traffic Volume and Speed

If possible, tubes to be placed in travel lanes should be installed when traffic volumes are low enough to allow the installer to place the tubes during a gap between passing vehicles. Traffic volumes or other conditions may necessitate scheduling the installation during off-peak traffic hours and/or on a weekend morning. Night installation will require extra measures to enhance the visibility of the work in the roadway, no matter how quickly it can be performed. If the installation can't be done safely during natural gaps in traffic, lane closures may be necessary in accordance with the attached drawings (as referenced below):

Single Lane Closure

Conventional Highway Two Way, two Lane, flagger control – TC-C1R

Conventional Highway Multi-Lane, left lane closure – TC-C2

Conventional Highway Multi-Lane, right lane closure – TC-C3

A spotter shall be provided for each operation in a travel lane unless the work is protected by barrier vehicles. A spotter is not a flagger, and shall only direct workers or equipment, and shall not direct traffic except in an emergency or in low volume, low speed situations as designated by the competent person. The competent person should assess the noise level of the roadway environment and ensure that the spotter can effectively warn workers within the travel lane. The spotter shall not be assigned any work which could inhibit his or her ability to effectively identify hazards and warn workers. On two lane conventional highways of 10,000 AADT or more, and four lane conventional and limited access highways of 20,000 AADT or more, barrier vehicles with truck mounted or trailer mounted impact attenuators shall be provided to protect workers in the travel lane unless the work can be done when traffic volumes have subsided enough to provide acceptable gaps.

Where the competent person determines that traffic volumes warrant use of flaggers to control traffic, flaggers shall be adequately trained in flagging operations by recognized training

programs, including the American Traffic Safety Services Association, the National Safety Council, unions, or construction industry associations, or by an individual who holds a current certification as a flagger training instructor from such a program. Flaggers shall wear orange protective helmets and traffic control apparel in accordance with NYSDOT Standard Specification Section 107-05A *High Visibility Apparel*. Flaggers shall be equipped with an emergency air horn to alert workers of errant vehicles or other dangerous situations. For operations of less than 15 minutes duration with favorable sight conditions, a Flagger symbol (W20-7) sign shall be provided in advance of each flagger as shown in drawing TC-C1R if deemed appropriate by the competent person. Operations exceeding a fifteen-minute duration or with unfavorable sight distances and traffic conditions shall comply with the Standard Sheet for flagger operation or drawing TAST-C1R (as referenced in the NYSDOT Work Zone Traffic Control Manual).

Available sight distance which does not exceed the design stopping sight distance for the highway requires relocation to a more favorable location or special attention to the location of advance warning signs to adequately warn approaching drivers.

Proximity of driveways, intersections, ramps, and other highway features which add complexity and distract motorists shall be avoided or appropriate traffic control provided to address conflicting traffic movements and properly warn and guide highway traffic.

Traffic Control and Vehicle Lighting

For traffic counter deployment or retrieval, the work vehicle shall have at least two high intensity amber rotating beacons or a light bar visible from 1500 feet during daylight. Flashing LED beacons shall meet the requirements of SAE J845 Class 2. Strobe lights shall not be used. Cones used at night shall be reflectorized.

High Visibility Apparel

Each person in the roadway (including shoulder) shall wear ANSI Class 2 high visibility apparel and a hard hat. All workers involved in nighttime operations shall wear protective helmets and nighttime apparel in accordance with NYSDOT Standard Specification Section §107-05A. *High Visibility Apparel* at all times.

Nighttime Operations.

Work occurring after sunset and before sunrise will be considered nighttime operations. The Contractor shall meet the following additional requirements for work zone traffic control during nighttime operations.

Level I illumination (*5 foot-candles*) shall be provided for all operations by Contractor personnel, for any work in a travel lane or shoulder including work zone traffic control set-up, staging, and installation or maintenance work. The illumination may be provided by vehicle mounted lighting and personal gear. For work zone traffic control set-ups, level I illumination shall be provided near the beginning of lane closure tapers, at flagger stations, and at road closures for nighttime

work zones, including the setup and removal of the closure tapers. In no case shall a worker be in an unlit area. The spotter shall be equipped with a red glow cone/wand flashlight.

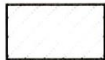
RURAL HIGHWAY

Notes:

1. Only for use for work durations of less than 15 minutes
2. Centerline cones are optional and may be eliminated where space constraints exist. If cones are used, place them 100 FT. (Min.) from flagger.
3. For work duration more than 15 minutes, and high speed, high volume roads, use drawing TAST-C1R



W20-1
36x36 in.

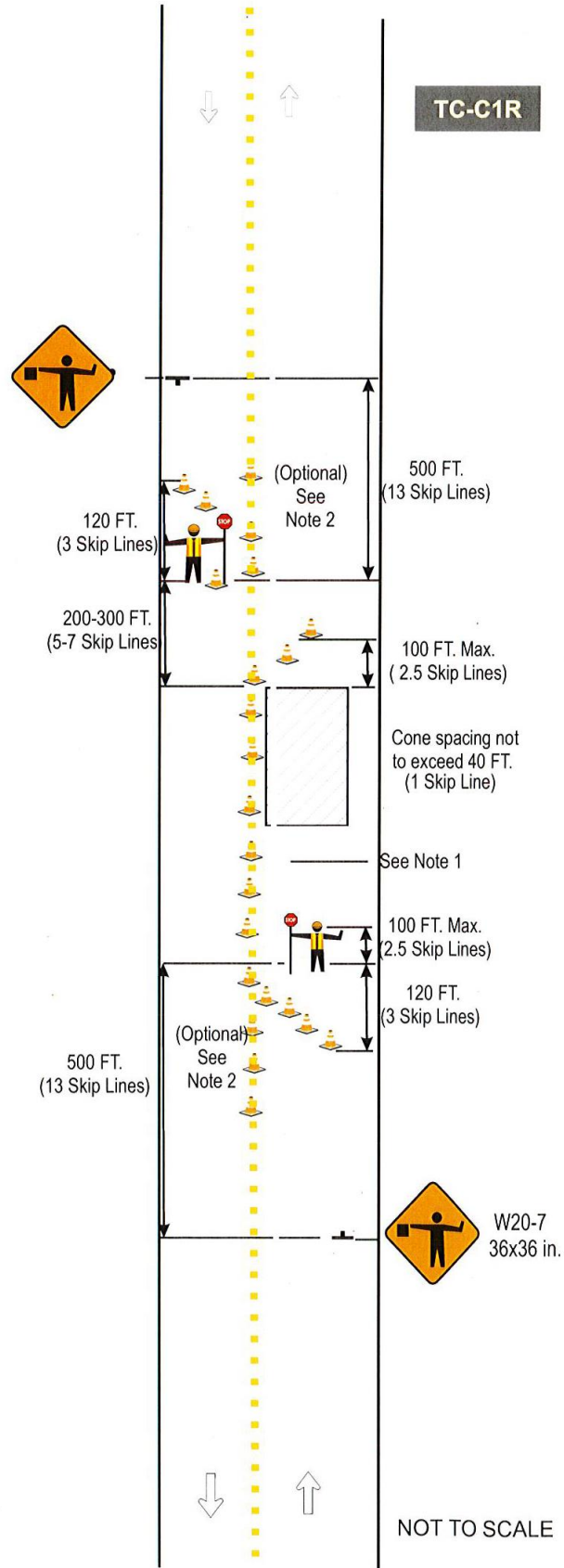


Work area

NYS DOT
WORK ZONE TRAFFIC CONTROL

TRAFFIC COUNTER DEPLOYMENT
 OPERATION INVOLVING
 DAYTIME
 LANE CLOSURE WITH FLAGGERS
 ON
 RURAL
 TWO-LANE CONVENTIONAL HIGHWAY

JUNE 2017 **TC-C1R**



RURAL OR URBAN HIGHWAY

TC-C2

ROAD WORK AHEAD
Sign is Required if
work duration is
greater than 15 minutes

Notes:

1. Short duration is work that occupies a location for up to 1 hour.
2. Should the work duration continue on longer than the 1 hour Maximum the Work Zone Traffic Control Setup shall be reconfigured and adjusted to meet the requirements of the Short Term Stationary Operation.
3. There shall be no workers, equipment, or other vehicles in the roll ahead distance.
4. In urban conditions, advance warning sign spacing may be reduced to a 100 FT. (Min.) in order to accommodate side streets and driveways.

Low Speed Urban
(30-40 mph):
200 FT. (5 Skip Lines)
High Speed Urban
(45-55 mph):
350 FT. (9 Skip Lines)
Rural: 500 FT.
(1 Reference Marker)
See Note 6

Cone spacing not
to exceed 40 FT.
(1 Skip Line)

10 FT.
Min.

Spotter
Recommended

All Cones are Optional
if work duration is
less than 15 minutes

Roll Ahead Distance

Low Speed Roadway:
(30-40 mph):
40 FT. (1 Skip Line)
High Speed Roadway:
(45-55 mph):
80 FT. (2 Skip Lines)

Barrier Vehicle is Required
and TMIA is Required

LANE CLOSED NYW8-33
48x24 in.

ROAD WORK AHEAD W20-1
36x36 in.

Work Area

Arrow Panel

Barrier Vehicle with TMIA

LANE CLOSED

Low Speed Urban
(30-40 mph):
200 FT. (5 Skip Lines)
High Speed Urban
(45-55 mph):
350 FT. (9 Skip Lines)
Rural: 500 FT.
(1 Reference Marker)
See Note 4

ROAD WORK AHEAD

ROAD WORK AHEAD
Sign is Required if
work duration is
greater than 15 minutes

NOT TO SCALE

NYS DOT
WORK ZONE TRAFFIC CONTROL
TRAFFIC COUNTER DEPLOYMENT
OPERATION INVOLVING
INTERIOR LANE CLOSURE
ON
RURAL OR URBAN
FOUR LANE CONVENTIONAL HIGHWAY

JUNE 2017

TC-C2

RURAL OR URBAN HIGHWAY

Notes:

1. Short duration is work that occupies a location for up to 1 hour.
2. Should the work duration continue on longer than the 1 hour Maximum the Work Zone Traffic Control Setup shall be reconfigured and adjusted to meet the requirements of the Short Term Stationary Operation.
3. There shall be no workers, equipment, or other vehicles in the roll ahead distance.
4. In urban conditions, advance warning sign spacing may be reduced to a 100 FT. (Min.) In order to accommodate side streets and driveways.

LANE CLOSED NYW8-33
48x24 in.

ROAD WORK AHEAD W20-1
36x36 in.

Work Area

Arrow Panel

Barrier Vehicle with TMIA

All Cones are Optional
if work duration is
less than 15 minutes

10 FT.
Min.

Cone spacing not
to exceed 40 FT.
(1 Skip Line)

Spotter
Recommended

Roll Ahead Distance

Low Speed Roadway:

(30-40 mph):

40 FT. (1 Skip Line)

High Speed Roadway:

(45-55 mph):

80 FT. (2 Skip Lines)

Barrier Vehicle is Required
and TMIA is Required

LANE CLOSED

Low Speed Urban

(30-40 mph):

200 FT. (5 Skip Lines)

High Speed Urban

(45-55 mph):

350 FT. (9 Skip Lines)

Rural: 500 FT.

(1 Reference Marker)

See Note 4

ROAD WORK AHEAD

ROAD WORK AHEAD
Sign is Required if
work duration is
greater than 15 minutes

NYS DOT
WORK ZONE TRAFFIC CONTROL
TRAFFIC COUNTER DEPLOYMENT
OPERATION INVOLVING
EXTERIOR LANE CLOSURE
ON
RURAL OR URBAN
FOUR LANE CONVENTIONAL HIGHWAY

JUNE 2017

TC-C3

TC-C3

NOT TO SCALE

RURAL HIGHWAY

Notes:

1. Any buffer distance provided in advance of the set-up will add to the safety of the work area. The buffer space is from the end of the lane taper to the beginning of the work area.

Speed Limit (Mph)	Buffer Space
30	200' (5 Skip Lines)
35	250' (~6 Skip Lines)
40	305' (~8 Skip Lines)
45	360' (9 Skip Lines)
50	425' (~11 Skip Lines)
55	495' (~13 Skip Lines)



This sign shall be located a Maximum distance of 500' (12 Skip Lines) past the work area.



W20-1
36x36 in.



W21-5
36x36 in.



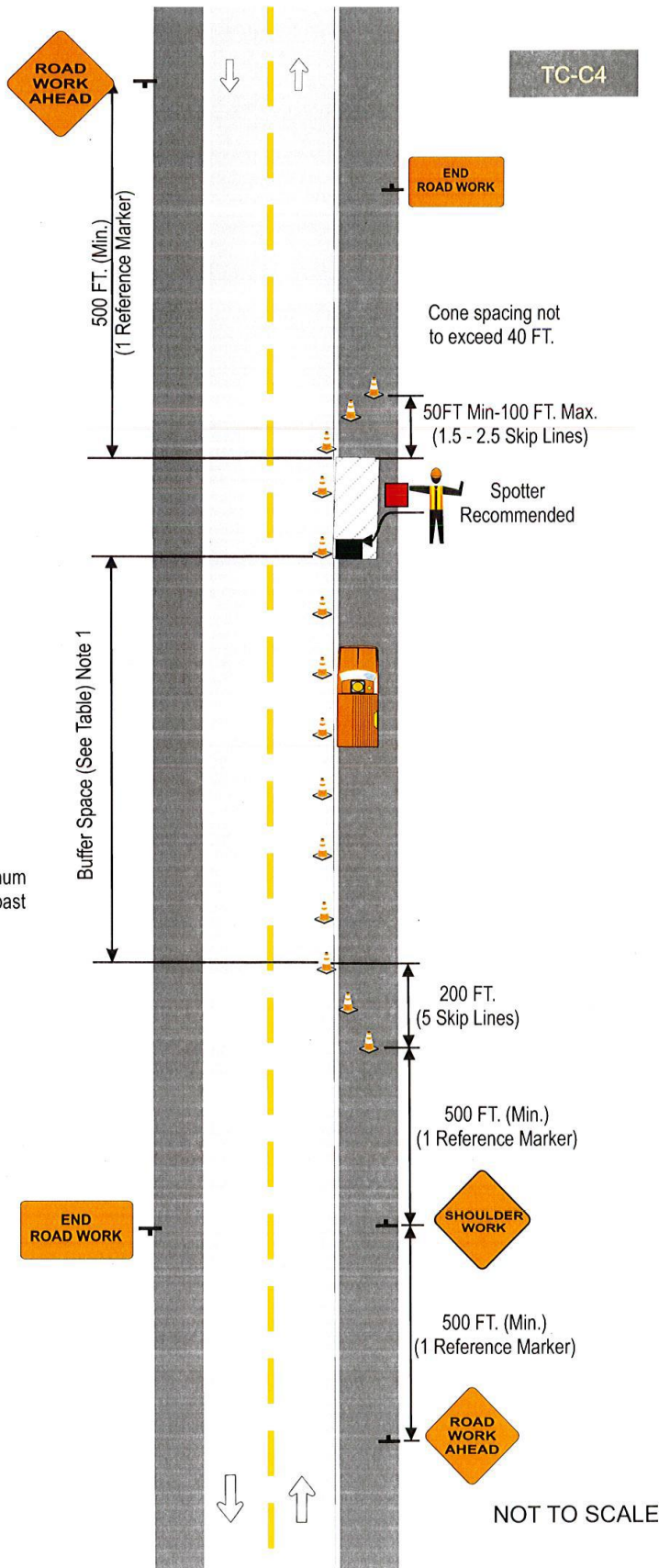
Work Area



Work Vehicle

NYS DOT
WORK ZONE TRAFFIC CONTROL

**TRAFFIC COUNT
 SHORT-TERM STATIONARY
 OPERATION INVOLVING
 SHOULDER CLOSURE
 (PAVED SHOULDER 8 FT. OR WIDER)
 ON
 RURAL
 TWO-LANE CONVENTIONAL HIGHWAY**
JULY 2017 TC-C4



APPENDIX C

Field Log Sheets

Field Log Sheets

The Highway Data Services Bureau has developed the following field log sheet template to insure consistent reporting of the site setup and location information across organizations. The intent is to provide a form for the traffic count Field Technician which, when completed in the field, will meet the Field Log requirements in the Data Collection Standards while also minimizing the time required reviewing field logs when count files have been submitted.

A description of each field plus the template of the field log sheet are provided in this section. Other formats may be accepted with written approval from the Main Office. Questions regarding the selection of appropriate codes and values for data fields may be directed to the Regional Office or Main Office.

A field log file shall be created for each count at each Traffic Count Station. The field log files may be either PDF or .xlsx files and shall be named as follows:

Field log file naming convention

RC0000FLMMDDYYYY

R	- Region
C	- County Code
0000	- Station Number
FL	- Indicates the file type as a field log
MM	- Month the count was started
DD	- Day the count was started
YYYY	- Year the count was completed

Presented below are the fields that may need to be completed, and the associated codes that may be used.

** indicates data that may be obtained from Traffic Count Header Files*

Field Name

Field Description

Site Information

Region

A single digit number indicating the NYSDOT Region for Regions 1 through 9. Both Regions 10 and 11 will have a Region code of "0".

<i>County</i>	A single digit number for each County based on the Regional County list (see the Region County and FIPS list below).
<i>* Station</i>	A four-digit station number provided in the schedule formatted as “0000”.
<i>FIPS</i>	The three-digit Federal Information Processing Standards Codes for New York State Counties (see the Region County and FIPS list at the end of this appendix).
<i>Count Type</i>	<p>The Count Type shall be one of the following:</p> <p>Tube Volume Tube Class Non-Intrusive Volume Non-Intrusive Class Permanent Short Count Volume Permanent Short Count Class Manual Count Other</p> <p>For Non-Intrusive and Other count types, the method used shall be noted in the Count Notes section.</p>
<i>* Route No/County Road No.</i>	The Route Number if the road is part of the NYS touring or reference route system (i.e. I81, US15, NY32, or 957A). The road number if the road is part of the county route system (i.e. CR25). Route and Road number can be found in the station header or off-network header files.
<i>Road Name</i>	Name of the road where the counter is placed.
<i>* GeoCode</i>	NYSDOT Code representing the municipality in which the route or road is located. It shall be a four-digit number including any leading zeros. The GeoCode can be found in the station header and off-network header files.
<i>Municipality</i>	Name of the city, town or village where the road is located.
<i>* BIN</i>	Bridge Identification Number. The Traffic Count Header files only list one BIN on a station. On stations with multiple bridges, list the BIN for the bridge that is closest to the count placement.
<i>* RR #</i>	Railroad Crossing Identification Code. The Traffic Count Header files only list one rail crossing on a station. When multiple

crossings are in one station, list the railroad crossing closest to the count placement.

*** *Lanes***

Number of lanes as listed in the Station Header file. Shall be formatted PL:NL;

- PL – number of lanes in the primary direction
- NL – number of lanes in the non-primary direction

Lanes Counted

The number of lanes counted at the location where the counter is placed. This may differ from the lanes listed in the Traffic Count Header files due to the necessity to count auxiliary lanes (e.g. turning lanes, merge lanes, slip ramps), to represent all traffic in the section, and the exact layout of the tubes. The format shall be the same as the Lanes field.

Speed Limit

Speed limit where the counter is placed.

Counter Location Information

Location Description

A description of the specific placement of each recorder. These descriptions should list a distance reference from the nearest intersection (by direction). It is NOT a repeat of the count's Road/Street name or Begin/End descriptions. This shall not have the closest Reference marker listed. Values reported shall be accurate within +/-0.01 miles or +/-52 feet.

GPS Latitude

Latitude collected for the primary direction of the roadway as specified in the Appendix G "Geospatial Coordinate Guidelines".

GPS Longitude

Longitude collected for the primary direction of the roadway as specified in the Appendix G "Geospatial Coordinate Guidelines".

Time /Date

Time and date the GPS coordinates were taken. Date shall be in Month/Day/Year format. Time shall be in Hour (24:00) format.

Crew Information

Org. Code

A 3-character code designating the organization responsible for counter layout and operation. This code shall match the list provided by the Main Office.

Field Technicians

Counter Operator Initials, 3-character user codes identifying the people working for the count Organization, who set out the counter.

Count Installation Information

<i>Work Week</i>	Week number from the Work Week schedule provided by the Traffic Monitoring section. This shall always be two characters.
<i>Dates</i>	Month/Day/Year format. List dates for the start of the collection, intermittent inspection of the setup, and pickup of the equipment.
<i>Times</i>	Hour (24:00) format. Include all times for the start of the collection, intermittent inspection of the setup, and pickup of the equipment.

Counter Information

<i>Manufacturer</i>	The name of the manufacturer of each counter used for the count.
<i>Model</i>	The model name or number of each counter used for the count.
<i>Serial No</i>	The complete serial number of each counter used for the count.
<i>A-B Direction</i>	Cardinal direction of travel from the channel A tube to the channel B tube, if applicable.
<i>File Name(s)</i>	File name(s) that the data was saved to by the counter (may need to be entered when the data is downloaded for conversion to NYSDOT file formats).
<i>Count Interval</i>	Time Interval for which counts are taken, list in minutes (i.e. 15 min., 60 min., etc.). In most cases, this will be 15 min.

Count Notes

Miscellaneous notes about the count which may include the following:

- Method used for Non-Intrusive and Other count types
- Issues with the count (Loose tubes when inspected, unusual traffic patterns, weather problems, counters damaged or not working at pick up, etc.)
- The location placement Change-Order Number, approval date, and approver initials, if location is not within the limits of the original GPS coordinates
- Secondary coordinate and location description for counts with multiple set-ups.
- Count method changes: must include approval date, approver initials, count method scheduled, count method used, Item number scheduled, and final Item number for the collection.
- Other notes needed to accurately locate the count and understand the data.

Map

The map shall contain a sketch of the area where the traffic count was placed and at a minimum should display the following:

- Show crossing roads in the area
- Show the location where the counter was placed, with a measurement from the closest intersecting road and the location of the identifying feature in the attached photo.
- A north arrow clearly displaying the orientation of the map or sketch. The map or sketch shall be oriented with north in the top half on the page.

Counter Layout

The Counter Layout shall accurately display the setup used for the traffic count and have the following:

- General location of count device
- Tube layout and spacing (including labeling the tubes) if tubes are used.
- The direction(s) of travel
- Counter(s) used (Counter Serial Number)
- Number of lanes each counter is collecting data from
- Pavement markings, as observed at the location

Attach multiple layouts for counts requiring multiple set-ups. When multiple set-ups are utilized, each layout drawing must be labeled with a corresponding GPS point.

Site Photos

Site photos are used to confirm the conditions when the traffic count was collected and shall meet the following requirements:

- All photographs shall have a resolution of 1200x900 pixels or greater.
- A minimum of three site photographs for each setup must be attached.
- A minimum of one unique site photograph must be captured for each photo type listed below.
- Provide as many additional photographs as needed to meet the requirements of each photo type.
- The photographs shall be labeled Identifying Feature, Layout, and Roadway.

The combination of photos for each photo type at a setup must meet the following requirements:

- Identifying Feature photos
 - Shall display enough information to easily identify the location where the traffic count equipment was placed.
 - Must show a part of the layout with an object or geographic feature that can be easily identified when using Google “Street View”, Bing “Street side,” or aerial photos.
- Counter Layout photos
 - Shall clearly show how the traffic count equipment was set up.
 - Shall capture all of the traffic count setup
 - If the entire traffic count setup cannot be captured with a single photograph, multiple photographs with overlapping parts of the setup may be necessary.
 - Shall be taken perpendicular to the road.
 - Must show all traffic count equipment at the setup.
 - Where possible, the center of the photo shall line up with the center of the traffic count equipment.
- Roadway photos
 - Shall show the condition of the road surface around the count location and display any road features that may affect the traffic count.
 - Shall be taken facing along the roadway in either direction.
 - Photos captured from the side of the roadway, facing as close to parallel to the roadway as possible are acceptable.
 - Must show the entire width of the roadway where the data is collected.
 - If the entire width of the roadway cannot be captured with a single photograph, multiple photographs with overlapping parts of the road may be necessary.
 - Must show a minimum of 2ft (24 in.) of the roadway in front of any equipment attached to the pavement

This area of the Field Log Sheet(s) can be used to paste actual photos, list the filenames of attached photos, or provide a site sketch indicating location and angle of photographs, or any combination thereof. The photographs shall be named as follows:

RC0000XSMMDDYYYY

R	- Region
C	- County Code
0000	- Station Number
X	- I for the photograph containing the identifying feature L for the photograph containing the tube and counter layout R for the photograph displaying the roadway segment
S	- serialized number if multiple photographs are taken (i.e. multiple setups/counters)
MM	- Month
DD	- Day
YYYY	- Year

New York State Department of Transportation

Traffic Count Field Log

(Organization)

Site Information			Installation Information		Work Week:		Check 1		Check 2		Pickup	
Region:	County:	Station:			Start Date:		Date:		Date:		Date:	
FIPS:	Count Type:				Start Time:		Time:		Time:		Time:	
Route/Road #:	Road Name:		Counter Info		Manufacturer		Model		Serial No		A-B Direction	
GeoCode:	Municipality:		Counter 1								Filename	
BIN:	RR#:	Lanes:	Counter 2								Count Interval	
Speed Limit:	Lanes Counted:		Counter 3									
Counter Location			Counter 4									
Location Description:			Counter 5									
GPS Latitude:		Date:	Counter 6									
GPS Longitude:		Time:	Count Notes:									
Crew Information												
Org Code:												
Field Technicians:												
MAP			COUNTER LAYOUT					SITE PHOTOS				

NYSDOT Region County Codes and FIPS codes

Region	County Number	County	FIPS	Region	County Number	County	FIPS
1	1	Albany	001	6	1	Allegany	003
	2	Essex	031		2	Chemung	015
	3	Greene	039		3	Schuyler	097
	4	Rensselaer	083		4	Steuben	101
	5	Saratoga	091	7	6	Yates	123
	6	Schenectady	093		1	Clinton	019
	7	Warren	113		2	Franklin	033
	8	Washington	115		3	Jefferson	045
2	1	Fulton	035		4	Lewis	049
	2	Hamilton	041		5	St. Lawrence	089
	3	Herkimer	043	8	1	Columbia	021
	4	Madison	053		2	Dutchess	027
	5	Montgomery	057		3	Orange	071
	6	Oneida	065		4	Putnam	079
3	1	Cayuga	011		5	Rockland	087
	2	Cortland	023		6	Ulster	111
	3	Onondaga	067		7	Westchester	119
	4	Oswego	075	9	1	Broome	007
	5	Seneca	099		2	Chenango	017
	6	Tompkins	109		3	Delaware	025
4	1	Genesee	037		4	Otsego	077
	2	Livingston	051		5	Schoharie	095
	3	Monroe	055		6	Sullivan	105
	4	Ontario	069		7	Tioga	107
	5	Orleans	073	10	3	Nassau	059
	6	Wyoming	121		7	Suffolk	103
	7	Wayne	117	11	1	Bronx	005
5	1	Cattaraugus	009		2	Kings	047
	2	Chautauqua	013		4	New York	061
	3	Erie	029		5	Queens	081
	4	Niagara	063		6	Richmond	085

APPENDIX D

Equipment Testing Specifications

Equipment Testing Specification

All portable traffic counters must be tested annually, prior to the count season, to ensure that their count deviation does not exceed 2%. The following instructions illustrate the required procedure for testing.

- STEP 1 Make sure that all counters display the same clock time prior to Simulation Test. Record the counter and module serial numbers on a sheet and include a pass or fail next to each record after testing along with other items from Step 7.
- STEP 2 A NYSDOT approved traffic simulating device capable of calibrating traffic counters must be used for this step. Obtain volume, speed, and classification data for the same simulated traffic in the same direction at five-minute intervals for a minimum of 2 hours.
- STEP 3 After the minimum 2-hour test is complete, download and process the counts.
- STEP 4 Examine the output from the counters to find the counters with intervals that exceed the average value by $\pm 2\%$.
Note: If one interval value is very different from the others in the same interval, it may affect the average enough to place good values more than 2% from the acceptable average.
- STEP 5 Compare the average value for each interval with the individual interval counts. Determine values that stand out and eliminate the respective machine from the comparison. Re-compute the average values. Repeat this process until remaining count data falls within $\pm 2\%$ of the acceptable average.
- STEP 6 Troubleshoot suspect equipment, repair if necessary, and retest.
- STEP 7 Compile the results from the testing process in spreadsheet format listing the validated traffic counters by model and serial number and their comparative count values. Provide one copy of the results to the Regional Office and one copy to the Main Office.

APPENDIX E

Camera System Requirements

Camera System Hardware Requirements

Hardware used to collect intersection & highway video must conform to the following hardware specification:

- Camera system must be portable and must be deployable on existing street infrastructure.
- Camera must be deployable to the appropriate height needed for accurate counting.
- Camera system must allow the operator to validate that each approach is within the camera's field of view.
- Camera system must operate at temperatures ranging from -40°F (-40°C) to 140°F (60°C)
- Camera system must be able to handle maximum wind load of at least 50 mph (~80.5 km/h)
- Camera must be suitable for 24-hour (including night) studies
- Camera system must have battery life to support up to 72 hours of continuous recording.
- Camera system must support redundant video storage.
- Camera system must support expandable memory and external devices.
- Camera system must be capable of operating in inclement weather, such as rain or snow.

APPENDIX F

Approving Traffic Counters, Devices, and Alternative Counting Methods for Short Count Data Collection

Approving Traffic Counters, Devices, and Alternative Counting Methods for Short Count Data Collection

Each traffic counter, device, and alternative counting method must be approved by NYSDOT Main Office Traffic Monitoring Section. Traffic counters, devices, and alternative counting methods must be tested using the following procedure.

1. Every device must be tested against a simultaneous manual count. For verification purposes, the manual count will be verified against a contractor-produced video of the test traffic being counted. The device, manual and video count must be taken for at least three (3) hours at a location approved by the NYSDOT Traffic Monitoring Section. The device must be within 5% of the manual count (% may be adjusted for certain count types by the Main Office).
2. Both the counting device and manual count must record and report out the data in 15-minute intervals.
3. Upon completing the traffic count comparison, the contractor will submit the results to the Main Office. The format for submitting the data is: a copy of the device's downloaded data in 15-minute intervals; the outcome of the download summarized in a spreadsheet compared to the manual count in 15-minute intervals; a video recording of the test traffic count.
4. Only traffic counters, devices, and other traffic counting methods that are certified by the Main Office may be used in field data collection.

APPENDIX G

Geospatial Coordinate Guidelines

Geospatial Coordinate Guidelines

A coordinate reading is required for all volume, speed, and classification counts (including manual counts). Coordinates must be recorded as Latitude/Longitude. Measured coordinates must be recorded with a handheld GPS device at the counter location and reported within 30 feet linearly along the roadway of the count placement. If multiple setups are utilized, the coordinate submitted in the EXCEL file shall be the coordinate for the counter collecting the primary direction of the roadway. Coordinates will be confirmed by the Main Office.

GPS units must have the following settings:

- Datum: WGS 1984 (WGS = World Geodetic System)
- Units: decimal degrees
- Precision: 5 decimal places

The coordinates must be saved in an EXCEL (.xlsx) spreadsheet. The name of the EXCEL file must start with “GPS_” followed by the year, and the full name of the traffic count package it corresponds to.

EX. GPS_YYYY_R##T##xORG####*.xlsx

Where “GPS_” is fixed

YYYY_ is the count year followed by an underscore

R##T##xORG####* as defined by the batch naming convention in Section 16

The Main Office will assume that all incoming files will be formatted following these standards. Any coordinates the Main Office finds incorrect will be sent back to have the coordinates re-measured. For example, longitude projected as a positive number will place the station’s location on the other side of the Prime Meridian and would accordingly be sent back to the organization that took the coordinates.

If a station has a set of coordinates provided as its required count location, the submitted coordinates should not be identical to those provided by NYSDOT. GPS coordinates do not replace the need for a verbal description of the counter placement location.

The data report includes a column for the FIPS (Federal Information Processing Standards) county codes along with NYSDOT’s Region County Codes.

The data contained in the EXCEL file would follow this format:

RC_ID	LAT_Y	LONG_X	ORG	DATE	FIPS COUNTY CODE	REGION COUNTY CODE	STATION NUMBER	ROUTE NO.	ROAD NAME	COMMENT
03_3005	40.58407	-73.92511	Traffic Count Contractor	6/11/2009	059	03	3005	907C	908M EXIT 43A	
03_1299	40.57843	-73.99144	Traffic Count Contractor	6/12/2009	059	03	1299	CR17	SHORE AVE	

The field definitions are as follows:

Name	Formatting	Description
RC_ID	Text (7 characters)	Unique ID for each station; created by concatenating RC and Station, with an underscore in between.
LAT_Y	Number (5 decimal places)	Latitude of the station formatted in Decimal Degrees; will always be a positive number in New York State.
LONG_X	Number (5 decimal places)	Longitude of the station formatted in Decimal Degrees; will always be a negative number in New York State.
ORG	Text	Name of the organization that collected the coordinates
DATE	Date/Time	Date of collection (mm/dd/yyyy)
FIPS_CODE	Text (3 characters)	Federal Code for each County used in Data Reporting; can be blank if a valid RC code is entered.
RC_CODE	Text (2 characters)	Unique ID for each county used by the DOT
STATION_NO	Text (4 characters)	Number assigned to each Station for the purpose of identification; non-unique between counties;
ROUTE_NO	Text	Route number assigned by the State or County. Include the signing before the number (ex CR17, I-87)
ROAD_NAME	Text	Name of roadway the station is assigned to. Can be left blank if Route No is filled in.
COMMENTS	Text	Comments, if necessary.

A list of the FIPS County Codes is included in the following table:

RC Code	FIPS Code	County Name	RC Code	FIPS Code	County Name	RC Code	FIPS Code	County Name
11	001	Albany	42	051	Livingston	82	027	Dutchess
12	031	Essex	43	055	Monroe	83	071	Orange
13	039	Greene	44	069	Ontario	84	079	Putnam
14	083	Rensselaer	45	073	Orleans	85	087	Rockland
15	091	Saratoga	46	121	Wyoming	86	111	Ulster
16	093	Schenectady	47	117	Wayne	87	119	Westchester
17	113	Warren	51	009	Cattaraugus	91	007	Broome
18	115	Washington	52	013	Chautauqua	92	017	Chenango
21	035	Fulton	53	029	Erie	93	025	Delaware
22	041	Hamilton	54	063	Niagara	94	077	Otsego
23	043	Herkimer	61	003	Allegany	95	095	Schoharie
24	053	Madison	62	015	Chemung	96	105	Sullivan
25	057	Montgomery	63	097	Schuyler	97	107	Tioga
26	065	Oneida	64	101	Steuben	03	059	Nassau
31	011	Cayuga	66	123	Yates	07	103	Suffolk
32	023	Cortland	71	019	Clinton	01	005	Bronx
33	067	Onondaga	72	033	Franklin	02	047	Kings
34	075	Oswego	73	045	Jefferson	04	061	New York
35	099	Seneca	74	049	Lewis	05	081	Queens
36	109	Tompkins	75	089	St Lawrence	06	085	Richmond
41	037	Genesee	81	021	Columbia			

The EXCEL template file is downloadable at the following address:

<https://www.dot.ny.gov/highway-data-services>

The coordinates should be sent in as part of the entire traffic count package.

Any questions please contact:

NYSDOT – Highway Data Services Bureau
MO-TrafficDataViewer@dot.ny.gov
 (518) 457-1965

APPENDIX H

Traffic Count Package Cover Letter

Traffic Count Package Cover Letter

A cover letter will be required for each reviewed traffic count package. The cover letter file name should be consistent with the traffic count package file name (see Traffic Count File Naming Convention in main document). Additional package notes may be included in the cover letter below the required information. The required information is presented below.

Data Element

Description

Organization Identification

<i>Name</i>	The name of the group providing data. Examples include Contractor Company name, Regional Office, Metropolitan Planning Organization or County name.
<i>Contact Info.</i>	Address, email, and phone number(s) where the group may be reached with questions about the traffic counts presented.
<i>Contract Number</i>	Contract Number (typically starts with C00) or Purchase Order Number associated with the traffic data collection effort.
<i>NY Vendor ID/SFS No.</i>	The ten-digit number used to identify the counting organization in the Statewide Financial System (SFS).

Count Package Identification

<i>Region Number</i>	The Region in which this submission of data was collected.
<i>Type</i>	The Type of data collected in the submission (see Traffic Count File Naming Convention in main document).
<i>Work Week ##a</i>	Work Week number (see annual Work Week Calendar, number corresponds to end date of data collection) AND sub-letter for the week (a for most, a, b, c, etc. for multiple packages in one week of the same type).

Site List Table

<i>Count Number</i>	Sequential numbering of the counts submitted. Each line should have a unique number (e.g. 1, 2, 3, 4).
<i>Route/Road Name</i>	This can be obtained from the Station Header or Off Network Header, in the RTSIGN, RTE, RDNAME, RDNUM fields, or a combination thereof.
<i>RC and Site ID</i>	This can be presented as two columns or one concatenated column; the first being the Region County code (two digits), the second being the four-digit Site ID code.
<i>Type</i>	The type of count for each site (e.g. Volume, Classification, Manual Turning count).
<i>Duration</i>	Duration of data collection for each count site. This should be “24 hour”, “48 hour”, “72 hour”, “7 day”, “NYSDOT Workweek”, “NYSDOT Workweek + Weekend” or something similar.
<i>Lanes</i>	Number of lanes counted. Contact the Main Office with regards to contracts for further definition.
<i>Method</i>	The method of data collection (e.g. tube, radar, loop, video).
<i>Comments</i>	This column has traditionally been left blank for use by the Main and Regional Offices.