

**NEW MEXICO STATE  
TRAFFIC MONITORING  
STANDARDS  
2009 / 2010**



**NEW MEXICO DEPARTMENT OF TRANSPORTATION**

**PLANNING DIVISION**

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## **NEW MEXICO STATE TRAFFIC MONITORING STANDARDS CALENDAR YEAR 2009/2010**

### Introduction

What follows are New Mexico's State Traffic Monitoring Standards (NMSTMS) to be used for all New Mexico Traffic Monitoring activities. The standards were first implemented on October 1, 1988. They continue to be reviewed and refined on a three-year basis, or as required, by the Traffic Monitoring Standards Review Committee.

Standards review meetings are convened on a three-year basis, or as required. Transportation planners, engineers, analysts, and other interested participants from a variety of public and private organizations take part in the review. Participating organizations include the New Mexico Department of Transportation (NMDOT); Metropolitan Planning Organizations (MPO); County and Municipal agencies; Consulting Engineering and Planning firms; and Computer Software Development firms.

The recommendations from the review are evaluated and finalized as standard practice by the New Mexico Department of Transportation, in cooperation with the Federal Highway Administration.

MPO's, and County and Municipal agencies to receive state or federal funding, will conduct Traffic Monitoring in compliance with the NMSTMS.

It is the responsibility of the NMDOT in conjunction with the Federal Highway Administration (FHWA) to provide the necessary resources to fulfill all requirements of the NMSTMS as approved.

For additional information, please call the Traffic Data Reporting Unit of the NMDOT at 827-5529.



New Mexico State Traffic Monitoring Standards  
List of Acronyms

1. AADT - Annual Average Daily Traffic
2. AADW - Annual Average Days of the Week
3. AASHTO - American Association of State Highway and Transportation Officials
4. AAWDT - Annual Average Weekday Traffic
5. AAWET - Annual Average Weekend Traffic
6. ASTM - American Society for Testing & Materials
7. ATR - Automatic Traffic Recorders
8. AVC - Automatic Vehicle Classifiers
9. AVMT - Annual Vehicle Miles Travel
10. AVW - Automatic Vehicle Weights
11. AWAC – Automatic Weight and Classification System
12. CHDB - Consolidated Highway Data Base
13. DVMT - Daily Vehicle Miles Travel
14. ESAL - Equivalent Single Axle Loading
15. FHWA - Federal Highway Administration
16. GPS - Global Positioning System
17. HPMS - Highway Performance Monitoring System
18. LCF - Loop Correction Factors
19. MADT -Monthly Average Daily Traffic
20. MADW - Monthly Average Days of the Week
21. MAF – Monthly Adjustment Factor
22. MAWDT - Monthly Average Weekday Traffic
23. MAWET - Monthly Average Weekend Traffic

24. MCR - Monthly Classification Ratio
25. MPO - Metropolitan Planning Organization
26. MRCOG – Mid Region Council of Governments
27. MTR - Monthly Traffic Ratio
28. MUTCD – Manual on Uniform Traffic Control Devices
29. MWR - Monthly Weight Ratio
30. NAAQS – National Ambient Air Quality Standards
31. NMDOT - New Mexico Department of Transportation
32. NMSTMS - New Mexico State Traffic Monitoring Standards
33. RPO - Regional Planning Organization
34. RWIM - Roadway Weigh-In-Motion
35. SHRP - Strategic Highway Research Program
36. TIMS – Transportation Information Management System
37. TMG – Traffic Monitoring Guide
38. TMS - Traffic Monitoring System
39. TRADAS – Traffic Data System
40. VMT - Vehicle Miles of Travel

## Traffic Monitoring Standards

### Scope and Review

1.0 Conformity Requirement--Traffic monitoring by any Public or Private Entity, required in order to satisfy these standards, presented concerning a proposal for state or federal roadway funding, conducted in association with a project along a roadway administered by the New Mexico Department of Transportation (NMDOT) or Federal Highway Administration (FHWA), will be in compliance with the current New Mexico State Traffic Monitoring Standards (NMSTMS).

1.1 Default Standards--The national traffic monitoring standards adopted by the American Association of State Highway and Transportation Officials (AASHTO), the American Society for Testing and Materials (ASTM) and, FHWA 23CFR500 TMS/H requirements, Traffic Monitoring Guide (TMG), Highway Performance Monitoring System (HPMS) Field Manual Appendix F & K, will be the default standards of the state of New Mexico if the national standards address issues which are not covered by the NMSTMS. The resolution of conflicts between the New Mexico Standards and national standards will be made by the New Mexico State Traffic Monitoring Review Committee upon review of the national standards or at the request of the NMDOT.

1.2 Three-Year Review--The NMSTMS will be reviewed on a three-year basis, or as required. The review will be conducted prior to November 30 of that year. Participation in the review will be open to all New Mexico traffic monitoring professionals in both the public and private sectors. Recommended revisions to the standards will be presented for adoption to the NMDOT, in cooperation with the FHWA.

1.3 Host of Standards Review--The standards review will be hosted and chaired on a rotating basis. The rotation will be by category of organizations represented by review participants. The categories of participating organizations in order of rotation are:

- New Mexico Department of Transportation
- Metropolitan Planning Organizations
- Private sector firms
- City and county governmental agencies.

During each review, participants will nominate the host organization for the next review year. The host agency or firm will be nominated from the next review year's rotation, and must be participating in the current review year. If accepting the nomination, the host organization will identify the staff person who will serve as Chairperson of the review. If no organization is nominated, or if the nominated organization declines, the NMDOT will host the review.

1.4 Minutes of Review--The Host Organization will provide a Recorder. The Recorder will be responsible for maintaining minutes of the meeting, which will guide the NMDOT in finalizing revisions to the NMSTMS.

2.0 Computerized Data--Standard compliant traffic monitoring by the NMDOT, MPOs, county and municipal governmental agencies, and private consulting engineering and planning firms, will utilize a computerized data format as approved by the NMDOT for electronic transmission of all traffic data.

2.1 Formats and Websites--Refer to online sites for information:

FHWA <http://www.fhwa.dot.gov/index.html>

TMG <http://www.fhwa.dot.gov/ohim/tmguide/index.htm>

HPMS <http://www.fhwa.dot.gov/ohim/hpmsmanl/hpms.htm>

NM State Traffic Monitoring Standards 2009/2010

<http://nmshtd.state.nm.us/main.asp?secid=14473>

### Traffic Monitoring Site Identification

3.0 Traffic summary statistics are to be reported by unique traffic sections, which have homogeneous traffic characteristics by unique intersection identification. Location identification for each report will be based on the NMDOT's Consolidated Highway Database (CHDB)/ Transportation Information Management System (TIMS). CHDB/TIMS identification is based on route number, direction, cumulative mile point, link termini and Traffic Section ID.

3.1 **GOAL** If a Global Positioning System (GPS) locating reference is used, the Traffic Data System (TRADAS) is designed to accept based latitude, and longitude, the format used is NAD83 UTM13 Zone coordinate system.

4.0 **GOAL** A map of roadways accompanied by a listing of CHDB / TIMS unique traffic section identifiers will be prepared by the NMDOT and shall be provided on an annual basis no later than January 31 of each year to the MPOs and by request to the Municipalities through the NMDOT Traffic Monitoring Unit.

5.0 **GOAL** If Global Positioning System (GPS) site identification is used for location of a traffic monitoring activity, the computer format for GPS site identification must be identical to that required by the NMDOT's TRADAS. Use the NAD83 UTM13 Zone coordinate system. The department must also have on record the receiver manufacturer and model used for global positioning with device precision under existing field conditions.

GPS site identification may be used for traffic monitoring activity if the count location, +/- device error, does not exceed the termini of the unique traffic sections or road link on which traffic is being monitored.

### Unique Traffic Sections

7.0 Each unique traffic section by factor groups will be determined by the NMDOT for all state roads excluding local roads within the boundaries which represent a MPOs, and Municipalities planning and data collection jurisdiction as agreed upon by the MPO/Municipality and the NMDOT.

8.0 Each unique traffic section by factor groups will be determined for roads within the boundaries which represent a MPOs, and Municipalities planning and data collection jurisdiction by the individual MPO/Municipality.

8.1 Each unique traffic section shall be placed into CHDB/TIMS. Coordination between State & MPO/Municipality shall identify each traffic section.

9.0 If two values of the same traffic volume summary statistic, at two locations within a traffic section, have a volume difference which exceeds ten percent of the sum of the two volumes or 500 AADT on traffic sections with an AADT of less than 5,000, the original traffic section shall be divided into two unique traffic sections.

9.5 If contiguous unique traffic sections have a volume difference less than ten percent of the sum of the two volumes or 500 AADT on traffic sections with an AADT of less than 5,000, the traffic section may be combined into a single traffic section for traffic volume flow analysis.

10.0 If two Equivalent Single Axle Loading (ESAL) summary statistics within a traffic section have an equivalent loading difference, which exceeds ten percent of the sum of the two ESALs, the original traffic section shall be divided into two unique traffic sections.

10.5 If contiguous unique traffic sections have an ESAL difference less than ten percent of the sum of the two ESALs, the traffic sections may be combined into a single traffic section.

#### Traffic Monitoring Truth-In-Data

12.0 Missing or inaccurate raw traffic data may not be completed, filled in, or replaced for any type of traffic count, at any location, under any circumstance. All raw data will be transmitted to the NMDOT Traffic Monitoring System.

13.0 **GOAL** Annual traffic volume summary statistics presented or reported by the NMDOT, MPOs, county and municipal governmental agencies and private consulting engineering and planning firms must include a confidence level and interval and must be one of the three standard units of annual traffic volume measurement (AADT, AAWDT or AAWET). Traffic summary statistics defined by the NMSTMS and presented or recorded for other periods, such as monthly average days of the week, will be clearly labeled. Unadjusted raw traffic count data to which the NMSTMS apply must be counted in compliance with the NMSTMS and have the notation: "Unadjusted Count Data, Not For Use as Standard Traffic Volume Summary".

14.0 **GOAL** In rural, small urban, and collective urbanized areas, the sample sizes are based on a 90-5 precision level for the volume groups of the principal arterial system, 90-10 for the minor arterial system, and 80-10 for the collector (excluding minor collector) systems. The sample for individually sampled urbanized areas is broken into two major categories of precision levels:

For individual urbanized areas with a population of 200,000, or more, and those that are in an NAAQS non-attainment area, the design precision levels are 90-10 for the arterial systems and 80-10 for the collector system.

For urbanized areas that are less than 200,000 populations and are individually sampled, the design precision levels for individual volume strata are 80-10 or 70-15, depending upon the number of urbanized areas designated as individual sampling areas (at the State's option). Those States with less than three designated individual urbanized areas will use a precision level of 80-10 for all factor groups which are grouped by functional classification, while those with three or more may use the lower precision level of 70-15 for the minor arterial and collector systems and 80-10 for the principal arterial systems thereby requiring a smaller number of samples.

The statewide summation of individual urbanized factor groups, which are grouped by functional classification data element estimates will result in an overall precision level of at least 80-10.

14.1 **GOAL** For each new installation of a permanent Automatic Traffic Recording System (ATR) we have initiated that a Special Provision specification must be met. The special provision requires that the installed device meet an accuracy level of:

- A. +/- 2% of the ATR traffic count comparison to a manual traffic count.
- B. +/- 10% of the ATR traffic classification comparison to a manual traffic classification count.
- C. For weight data collection the device must be within +/- 5% of five known vehicle weight passes.

The Special Provisions also provide that the Contractor responsible for the installation of the device be separate than the licensed engineer who conducts the manual count and must certify the comparison accuracies.

#### Traffic Data Summarization

15.0 The three standard units of traffic volume measurement and summarization are as follows:

- Annual Average Daily Traffic (AADT), which represents traffic over a seven-day week;
- Annual Average Weekday Traffic (AAWDT), which represents traffic over the typical work day period, Monday 00:01 through Friday 24:00 (coverage counts), Monday 00:01 through Thursday 24:00 (ATRs); and

Annual Average Weekend Traffic (AAWET), which represents traffic over the weekend period, Saturday 00:01 through Sunday, 24:00 (coverage counts), Saturday 00:01 through Sunday 24:00 (ATRs).

16.0 ATRs, Automatic Vehicle Classifiers (AVCs), and Automatic Vehicle Weighing (AVWs) are the permanent devices used to collect traffic volume data. Traffic volume summary statistics for data collected by permanent traffic recording devices are as follows:

MADW = Monthly Average Day of the Week = the sum of all daily volumes for each day of the week, Sunday through Saturday, over the course of a month divided by the number of days of standard compliant data for that day during the month. This will produce an average for each day of the week for that month.

AADW = Annual Average Day of the Week = the sum of MADWs for a year, for each day of the week, Sunday through Saturday/12. This will produce an annual average for each day of the week.

MADT	= sum of MADWs/7
AADT	= sum of MADTs/12
MAWDT	= sum of MADWs for Monday through Friday/the number of days of standard compliant data during the month
AAWDT	= sum of MAWDTs/12
MAWET	= sum of MADWs for Saturday through Sunday/2
AAWET	= sum of MAWETs/12
MTR	= the monthly traffic ratio = average traffic volume/annual average traffic volume. This ratio may be calculated for each of the volume summary statistics. The sum of the MTR's taken over the twelve months divided by 12 equals 1.00
MAF	= the monthly adjustment factor = 1/MTR = the adjustment factor for a given month which will convert monthly data to annual average data

17.0 Monthly Traffic Adjustment Factors and Monthly Traffic Ratios for a factor group are calculated using data from the permanent devices within that factor group for a given count year.

The agency with jurisdiction may elect to use permanent device data from additional factor groups, if necessary, due to insufficient data, based on professional judgment. The requirements for included devices are:

For MADW,	a minimum of 2 occurrences of each day of the week is required.
For AADW,	all 12 MADWs
For MADT,	all 7 MADWs
For MAWDT,	all 5 MADWs
For MAWET,	all 2 MADWs
For AADT,	all 12 MADTs
For AAWDT,	all 12 MAWDTs
For AAWET,	all 12 MAWETs

17.5 Step 1. NMDOT provides the MPO/Municipalities with monthly permanent counter (ATR) summary data (MAWDT) and Annual LCF for all locations in the jurisdiction for the previous 3 years.

Step 2. The MPO/Municipalities will review the NMDOT-provided data and may elect to develop their own factor groups based on geographic area, local knowledge of land-use, community character, travel patterns, and statistical analysis of short-term count data, etc. In this manner, the MPO/Municipalities may develop their own MAF's, AGF's, and LCF's.

Step 3. The draft factors and factor groups developed by the MPO/Municipalities will then be reviewed by the NMDOT for final approval. Factors have to be for the current year.

18.0 If a permanent device is excluded from the computation of mean traffic characteristics by factor groups per Standard 17.0, the available data will be used for all site-specific traffic volume summary statistics.

19.0 The default factor groups defined by functional classification of roads used in traffic monitoring, including monthly and annual traffic statistics summarized by functional classification are as follows:

Rural

- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Road

Urban

- Interstate
- Principal Arterial
- Freeways & Expressways
- Minor Arterial
- Collectors
- Local Road

The NMDOT factor groups, which are defined using functional classification, are based on the functional classification system in the TMG. Descriptions of the functional classifications can be found online at (<http://www.fhwa.dot.gov>). Conditions and Performance Report, Chapter 2 - System and use Characteristics. (Note: Functional classes may change by future HPMS revisions.)

Other factor groups, which are grouped by functional classification, may be derived from cluster analysis of monthly traffic volume characteristics. Recognizing that Urban Area Boundaries do not represent, in some cases, reasonable demarcations for the application of loop correction factors the following practices will be allowed until research can determine methods which define a more appropriate set of classification schemes:



1. The director of the NMDOT Transportation Planning Division may designate "Urban areas of influence" which extend beyond the Urban Area's Boundary. For relevant applications, Urban adjustment factors may be applied to the raw data to derive summary statistics provided they are applied to the same factor groups which are grouped by functional classification. Urban area of influence designations shall be limited to developing rural areas which represent logical extensions of the Urban area and where existing travel patterns demonstrate that there is considerable interaction between the two areas.

2. The director of the NMDOT Transportation Planning Division may designate "rural areas of influence" which extend into the Urban Area Boundary of an Urban area. For relevant applications, rural adjustment factors may be applied to the raw data to derive summary statistics provided they are applied to the same factor groups, which are grouped by functional classification. Rural areas of influence designations shall be limited to facilities which traverse an Urban area but where existing data suggest that the facility is minimally impacted by Urban travel patterns.

These sections will be replaced when factor groups are established.

20.0 The mean permanent device annual traffic volume growth rate by factor groups which are grouped by functional classification will be used as the default annual growth rate for non-count traffic sections in the same factor groups which are grouped by functional classification. Permanent devices, within a factor group, which are grouped by functional classification, which have not been on-line for a minimum of three years, will not be used in computing growth rates. However, said permanent devices may be used for computing other factors.

21.0 AVCs and AVWs are permanent devices or portable devices used to collect traffic volume and classification data. All data will be collected based on the FHWA specified vehicle classifications. Classification data will be summarized in the same manner as detailed for traffic volume summary statistics. Data will be summarized for each day, typical days of the week will be summarized by month, and monthly typical days of the week will be summarized for the annual traffic statistics. For a given site there will be typical daily vehicle classification based on a seven-day week, the workweek, and the weekend. The NMDOT Traffic Monitoring System will prepare monthly and annual vehicle classification reports.

22.0 **GOAL** The variability of vehicle classifications by factor groups, which are grouped by functional classification of roadway will be reviewed. The review will determine if vehicle classification data may be grouped. If grouping of data is indicated, Monthly Classification Ratios (MCRs) will be calculated and used in a manner similar to MTR for adjusting coverage and project-related, special count activities.

22.1 MPO's may develop their own growth factors and loop correction factors based on historical short term count data by factor group. The method and resulting factors **MUST BE SUBMITTED to NMDOT for approval**. Approval must be obtained in writing before the new growth factors may be used.

23.0 Weight data by vehicle classification will be summarized as per FHWA TMG. The NMDOT Traffic Monitoring System will prepare monthly and annual reports.

24.0 **GOAL** The data from Automatic Vehicle Weighing devices will be used to compute Monthly Weight Ratios (MWRs). MWRs will initially be standardized as unique, significant only at the site at which they are collected. The weight data will be reviewed to determine if weight data can be grouped among sites. The analysis will include vehicle classification weight by factor groups, which are grouped by functional classification of road, seasonal variation, and region of the state.

25.0 Coverage and, project-related, special counts will be adjusted for seasonal variation using monthly adjustment factors.

26.0 Coverage and special traffic volume counts will be adjusted for multiple axle vehicles by a loop correction factor. If a vehicle classification count was taken in the current year, the site specific vehicle classification based loop correction factor should be used to adjust recorded axle impulses to vehicles. Loop correction factors, for traffic sections on which vehicle classification counts were not taken in the current year shall be derived by the NMDOT in accordance with NMSTMS 66.1.

27.0 Monthly adjustment factors will be derived from standard data by factor groups.

27.1 Vehicle classification-based seasonal loop correction factors will be derived by ATR and short term counts. The current year average by factor groups, which are grouped by functional classification, will be used as the adjustment factors.

#### Traffic Monitoring Period

28.0 All counts taken in an Urban area will have a data summarization period of 15 minutes. An Urban area is defined as any community with a population of 5,000 persons or more.

29.0 All counts taken in a rural area will have a data summarization period of 15 minutes, or 1 hour. All roads in areas of the state in which there is not a population of 5,000 persons or more are rural roads.

30.0 There will be a minimum of 48 consecutive hours of data collected by direction reported from each coverage and special count site. This standard will apply for volume, classification, and weight, including screen line or cordon counts, and site-specific counts requested by the New Mexico State Legislature. All counts using Federal or State funding will be conducted on a 48-hour basis, adjusted, and documented in compliance with the NMSTMS.

30.1 For speed monitoring, there will be 24 ATR (48 short-term) consecutive hours of data collected for one direction for each speed coverage and special count site.

31.0 Interchange ramps, and ramp-freeway junctions, will be monitored by volume and classification procedures identified for coverage and special, project-related counts for traffic sections. Interchange ramp/street junctions will be monitored by traffic monitoring procedures identified for intersections. Interchange traffic monitoring includes analysis of traffic on the contiguous upstream and downstream Interstate unique traffic sections. If traffic counts were taken on the contiguous Interstate traffic sections in the same or prior calendar year, no additional count activity is required. If no traffic counts were taken on the contiguous upstream and downstream Interstate traffic sections, interchange traffic monitoring will include counts on the Interstate traffic sections, except as provided within State Standard 70.3 for ramp balancing. The Interstate traffic section counts will be 48-hour, weekday counts, conducted in the same seasonal adjustment period as the Interchange ramp monitoring.

31.5 Multilane, Divided & Interstate counts shall be collected for both directions within the same 48-hour period at the same mile point or Traffic Section ID.

33.0 Special count activities designed to monitor weekend traffic for identification of recreational route traffic characteristics, require data collection for the entire weekend period (00:01 Saturday - 24:00 Sunday) and can be supplemented with a full 7 day count.

34.0 Each year at least one-third of all traffic sections of factor groups, which are grouped by functional classification of collector or better will be counted.

35.0 Compliant coverage data will be considered as standard for a period of three calendar years, inclusive of the calendar year in which data collection occurred, except in the following case:

If capacity enhancements occur on any traffic section (defined as the addition of one or more through lanes) any previous data collected on the unique traffic section will be considered non-standard and the traffic section will have to be recounted. Compliant data collected on the traffic section shall be considered as standard for the calendar year in which the capacity enhancement was completed, provided the additional lane(s) were open to traffic no more than six months prior to the end of the calendar year.

36.0 The period of intersection manual turning movement counts will follow one of two procedures:

1) Fixed Intersection Count Period:

Manual counts will be conducted from 07:00 to 10:00, 11:00 to 14:00, and 15:00 to 18:00. This provides three traffic-monitoring periods over a period of twenty-four hours, each of a three-hour duration, for a total of nine hours of data collection.

## 2) Flexible Intersection Count Period:

Manual counts will be conducted based on observed peak traffic conditions from a standard 48-hour volume count conducted on the high volume leg of the intersection within the same seasonal adjustment period. The typical morning, noon, and evening peak hours will each be defined using fifteen-minute intervals rather than the clock hour. At a minimum, one half hour before and one half hour after each anticipated peak hour will be defined. This will result in three traffic-monitoring periods over a period of twenty-four hours, each of a minimum of two hours duration, for a total of a minimum of six hours of data collection.

Hard copies of intersection turning movement data will note the date and time of the three data collection periods. A site diagram containing mile points shall be included for each site submitted to NMDOT.

39.0 Multilane, Divided & Interstate Interchange ramps will be counted for 48 hours, Monday 00:01 through Friday 13:00. All ramps within the same interchange will be counted within the same seasonal adjustment period. Any re-counts submitted should be for the same seasonal adjustment period and the same days of the week, if possible.

### Traffic Report Period and Data Transmittal

40.0 The traffic-monitoring year will follow the calendar year, from January 1 through December 31.

40.2 Refer to Standard 2.1 for Formats and Websites for;  
FHWA—4 Card (Classification), 7 Card (Weight)  
FHWA-C Card (Classification), W Card (Weight)  
Peak—Volume, Classification and Speed in NMSTMS Formats.

40.5 **GOAL** Upon mutual agreement between the NMDOT and the MPOs may perform a year end load of summary statistics rather than transmitting data under the requirements of State Standard 41.0. Minimum prerequisites for such an agreement shall include:

1. MPOs must maintain the capability to transmit data to TMS.
2. MPOs must possess and maintain software which is capable of: applying all applicable state standards to the raw data; generating and storing all appropriate summary statistics; and all required reports under the same time constraints as those that apply to the NMDOT.
3. The MPO must store and maintain all raw data in its original form.

4. The year-end load shall be done electronically and in compliance with the time, data and format requirements specified by the NMDOT.
5. The process must be tested and approved prior to implementation.
6. Upon request the MPO will be required to submit hard copies of reports to the NMDOT or other interested parties within seven days of the request.
7. The end of each calendar year both the NMDOT and the MPO will produce Vehicle Miles of Travel (VMT) data by factor groups, which are grouped by functional classification, representing data from the area covered by the year end load. The acceptance requirements for this process shall be VMT data by factor groups which are grouped by functional classification which are within plus or minus one percent.
8. The coverage count reports for standard compliant data will be transmitted no later than one month after data acceptance by the Traffic Monitoring System.

41.0 Metropolitan and NMDOT Districts, county and municipal governmental agencies, and private consulting engineering firms will transmit raw traffic data to the Traffic Monitoring System no later than one month after the data collection with the exception of Calendar Year End. This data must be transmitted no later than December 31st of each year.

42.0 Metropolitan and NMDOT Districts, County and Municipal agencies monitoring traffic on roads which either currently or are proposed for state or federal funding, will transmit the raw data to the Traffic Monitoring System for data evaluation, data processing, and report generation. The data will be transmitted no later than one month after data collection with the exception of Calendar Year End. This data must be submitted no later than December 31st of each year.

43.0 Metropolitan and NMDOT Districts, County and Municipal agencies monitoring traffic on roads neither currently nor proposed for state or federal funding, are strongly encouraged to transmit the raw data, that is in a format acceptable to TMS, to the Traffic Monitoring System for data evaluation, data processing, and report generation.

44.0 Private consulting firms collecting New Mexico traffic data for a state or federally funded transportation project or study, will transmit the raw data to the Traffic Monitoring System for data evaluation, data processing, and report generation. The data will be transmitted no later than one month after data collection with the exception of calendar year end. This data must be submitted by no later than December 31st of each year. Data should conform to the NMSTMS.

45.0 Private consulting firms collecting New Mexico traffic data for a transportation project or study not funded by the state or federal government, are strongly encouraged to transmit the raw data, that is in a format acceptable to TMS, to the Traffic Monitoring System for data evaluation, data processing, and if requested by the private consulting firm & their clients, report generation.

46.0 Traffic summary reports within the area of MPOs, and Municipalities processed by the Traffic Monitoring System from data not collected by the MPOs/Municipalities, will be transmitted to the MPO/Municipality either electronically or in hard copy format as processing capability permits. The reports will be transmitted on a monthly basis. This will ensure that the MPOs/Municipalities have all standard traffic data summary statistics for their metropolitan area.

47.0 Interim analysis and reporting of traffic summary statistics from special counts, will be provided to the county or municipal governmental agency or private firm collecting the data by the NMDOT.

48.0 Monthly traffic summary statistics from permanent traffic recording devices located within the area of MPOs, and Municipalities will be transmitted to the MPOs/Municipalities on a monthly basis. During monthly TMS data processing, the monthly traffic reports transmitted for state and federal use will also be transmitted to the MPO/Municipality.

48.1 Final reporting and, analysis for all counts, within an MPO/RPO/Municipality area, accepted by the Traffic Monitoring System, will be provided to the MPO/RPO/Municipality by the NMDOT. These reports will be transmitted no later than February 15 of each year.

#### Permanent Traffic Recording Devices

49.0 The purpose of a permanent device is to collect data each day of the year on a unique traffic section. Permanent devices must be polled on a 24-hour basis to ensure data collection and device maintenance.

49.1 The NMDOT will be responsible for all permanent counter data collection and summarization, including those non-interstate permanent counters inside the Urban Area Boundaries of areas with populations of 50,000 or more.

49.2 **GOAL** MPOs and Municipalities may directly collect permanent traffic volume counter data within the Urban Area Boundary of their individual areas. Polling times will be coordinated between the NMDOT, MPOs and Municipalities, including the operating times of system clocks on PC's.

50.0 On traffic sections for which there is not full access control, the permanent device must measure volume at a specific point crossing all lanes of travel. On traffic sections for which there is full access control, the permanent device may measure volume at any point within the unique traffic sections, but must include all lanes of travel.

52.0 **GOAL** For application of the mean traffic volume summary statistics by factor groups, which are grouped by functional classification, there must be a minimum of six permanent traffic-recording devices for each factor groups, which are grouped by functional classification. If the minimum requirements is not met for a particular factor groups which are grouped by functional classification, then mean traffic volume summary statistics for the factor groups which are grouped by functional classification will be generated utilizing the permanent recorders for the factor groups which are grouped by functional classification plus all permanent recorders from the next higher factor groups which are grouped by functional classification or if necessary from the next lower factor groups which are grouped by functional classification.

52.1 When a permanent counter malfunctions repairs shall commence within one week of the reported malfunction after site evaluation.

53.1 The number of permanent traffic recording devices included in calculation of mean traffic summary statistics will be provided, by factor groups, as part of annual Traffic Monitoring System data processing and reporting.

57.0 The NMDOT will be responsible to annually summarize all MTR data by factor groups which are grouped by functional classification or group of factor groups which are grouped by functional classification and by MPOs and Municipalities, both individually and as a group, and will provide mean statistics to all interested governmental agencies on or before February 15 of each year.

58.0 The permanent device polling software must include verification of the microcomputer date and time.

59.0 If the clock on the permanent device exceeds +/- 10 minutes of the verified counter clock, then all data for that day will be excluded from summarization and reporting.

60.0 If the clock on the permanent device is less than +/- 10 minutes, but greater than +/- 5 minutes on the verified computer clock, a warning will be issued and the time will be adjusted on the field clock.

62.0 When the same-recorded traffic volume occurs at a permanent device, other than zero, for four consecutive intervals a warning message will be displayed and the day's data will be reviewed for optional purge.

64.0 When eight hours of recorded successive zeros occur at a permanent device, a warning message will be displayed and the day's data will be reviewed for optional purge.

65.0 If the daily directional total volume at a permanent device is within the range of 60% to 80% of the total traffic for that day, a data and device review message will be displayed.

66.0 If a daily directional total volume at a permanent device exceeds 80% of the total traffic for that day, the data will not be included when computing site traffic summary statistics.

66.1 If the permanent device records vehicle type information and the daily percentage of unidentified vehicles exceeds 10 percent of the total, the vehicle class information will be automatically purged from the summary file and may not be used under any circumstances to generate annual or monthly loop correction factors. Volume data for the day may be retained. If the daily percentage of unidentified vehicles exceeds 20 percent of the total, the day's data, including volume summaries, will be automatically purged and device error message will be displayed. If the unidentified percentage exceeds 20 percent for three consecutive days the device will be converted to record volume information only.

67.0 **GOAL** In order to derive representative MADW volumes, when the daily directional traffic volume for a given day of the week in a month exceeds two standard deviations from the mean previous years same day of the week directional AADW a data device review message will be displayed. If the daily directional traffic volume for a given day of the week in a month exceeds four standard deviations from the previous years same day of the week directional AADW it will be considered an outlier and stored in the Traffic Monitoring System. The mean volume will be recalculated excluding the outlier.

#### Coverage and Special Counts

69.0 The NMDOT will provide counts for all annual coverage count samples selected on a three-year count cycle, other than the roads within the boundaries, which represent an MPO's/Municipalities planning, and data collection jurisdiction as agreed upon by the MPO/Municipalities and the NMDOT.

70.1 The requirements of NMSTMS 62.0 through 66.1 shall apply to all coverage and special machine counts.

70.2 Interstate mainline data may be combined with Interstate ramp data to produce an upstream or downstream volume under the following conditions:

1. The data for the two locations monitored are standard.
2. The same 48 hours of data are used.
3. The same interval is recorded.
4. The roadways, which access the controlled facility, allow travel in only one direction.
5. The process for adding the two files is electronic.
6. Data may only be produced for the mainline links immediately upstream or downstream from the point of access.



### 70.3 Ramp Balancing for Estimation of Interstate Mainline Volumes

The method of ramp balancing must be approved in writing by the NMDOT before the new technique can be used. The standardized technique, to provide the best reliable estimates, needs consistent reliable data points. Intermediate ramp volumes would be factored in order to make them consistent with known upstream and downstream volumes.

One example is provided in the TMG.

Another example is: The derived factor would be applied to each ramp by adding or subtracting the ramp volumes as you downstream from the known starting point. Procedure follows:

1. It is assumed that reliable AWDTs are available from counts at two points, X1 and X4, on the same direction of travel on the Interstate mainline, but separated by two or more interchanges. Standard counts are assumed to exist for all ramps.

2. Assuming there are three interchanges between the known data points:

Let: X1=upstream vol.--based on standard data  
 X2=vol. after the first intermediate interchange  
 X3=vol. after the second intermediate interchange  
 X4=downstream vol. after the third interchange--based on standard data  
 off1=first interchange off ramp vol.  
 on1=first interchange on ramp vol.  
 off2=second interchange off ramp vol.  
 on2=second interchange on ramp vol.  
 off3=third interchange off ramp vol.  
 on3=third interchange on ramp vol.

3. calculate  $de1X = X4 - X1$

calculate sum of ramp vols as

$$de1X' = on1 - off1 + on2 - off2 + on3 - off3$$

4. calculate  $f = de1X / de1X'$

5. calculate the factored ramp volumes:

$$off1' = f * off1$$

$$on1' = f * on1$$

$$off2' = f * off2$$

etc.

6. use the factored ramp vols. to estimate mainline vols.,

e.g.:

$$X2 = X1 - off1' + on1'$$

$$X3 = X2 - off2' + on2'$$

(Note that X4 will automatically equal X3 - off3' + on3')

Publication of the resulting estimates would be allowed so long as the following conditions are met, pertaining to publication of nonstandard data.

In addition to situations where Interstate mainline counts may not be feasible, there will from time to time be other locations, which are missed due to scheduling, construction, weather, etc. It is suggested that the standards allow for more flexibility in the publication of such data.

71.0 Vehicle classification coverage counts will be based on electronic vehicle classification. Currently utilized classification devices in New Mexico accurately record axle impulses, but do not provide consistent, accurate interpretation of axle impulses into classification of vehicles when vehicles travel is not free flowing. Classification by length may also be used.

72.0 The manual urban traffic section counts, just as electronic vehicle classification counts, will be based on FHWA specified vehicle classification.

74.0 The vehicle classification manual count activity will follow one of the two procedures, designed to collect data manually when vehicle speeds prohibit the use of an electronic device.

1. Fixed Traffic Section Manual Count Period:

Manual counts will be conducted within a given day from 07:00 to 10:00, 11:00 to 14:00, and 15:00 to 18:00. This provides three traffic-monitoring periods during the day, each of a three-hour duration, for a total of nine hours of data collection. Missing peak hour period can be counted within 7 days of the original count.

2. Flexible Traffic Section Manual Count Period:

Manual counts will be conducted within a given day based on observed peak traffic conditions. The typical morning, noon, and evening peak hours will each be defined, using 15-minute intervals rather than the clock hour. One hour before, and one hour after the anticipated peak hour, will be defined. This will result in three traffic-monitoring periods during the day, each of three-hour duration, for a total of nine hours of data collection. Missing peak hour period can be counted within 7 days of the original count.

### Loop Correction Factor Responsibility

78.1 Loop correction factors (LCF) shall be derived by the NMDOT. LCFs shall be based on standard AVW, AVC and coverage count data collected over the current count year. LCFs shall be generated by factor groups..

78.2 **GOAL** Monthly LCFs shall only be generated in cases where the data collected from permanent devices meet the requirements of NMSTMS 66.1 at a minimum of six permanent devices per factor groups which are grouped by functional classification or groups of factor groups which are grouped by functional classification. Independent LCFs may be generated for the Interstate facilities or individual traffic sections of the Interstate system if the summary data justify such a treatment.

#### Intersection Turning Movement Counts

80.1 All manual turning movement counts will classify vehicles into two categories. The first category will include all vehicles in the FHWA's vehicle classification Bin 1-3 and the second Bin will include all vehicles in classes 4-13, or three Bins consisting of 1-3, 4-7, and 8-13. If more precise vehicle classification data is needed for the intersection, then the turning movement counts will be supplemented by electronic or manual vehicle classification counts.

#### Truck Coverage Count Weight Monitoring

84.0 **GOAL** A minimum of 90 sites, over a three-year period, will be monitored for truck weight for inclusion in the State coverage count program. These sites will be monitored for 48 consecutive hours.

85.0 Thirty of the coverage count sample sites will be selected from the Interstate Vehicle Classification sample. The remaining 60 sites will be selected from the other vehicle classification sample sites.

86.0 Volume and vehicle classification data from the truck weight samples will be used as part of the vehicle classification and volume samples by factor groups which are grouped by functional classification.

87.0 **GOAL** Portable Weigh-In-Motion devices currently utilized in New Mexico for coverage sample weight monitoring do not provide consistent, accurate recordings of individual axle and Gross Vehicle Weight for vehicles traveling below 25 mph. Weight data for vehicles traveling below 25 mph will be stored in the Traffic Monitoring System for further analysis. Vehicles traveling below 25 mph will be included in volume and vehicle classification summary statistics, but will not be included when computing mean load distribution by vehicle classification for the site, and for the factor groups which are grouped by functional classification of the road.

88.0 **GOAL** NMDOT will pursue Virtual Weigh in Motion.

### Traffic Flow Maps

89.0 All traffic flow maps published by the NMDOT, MPO's, and other public and private organizations, intended for distribution to the public or any other public or private entity shall clearly indicate which data reflect volumes in compliance with the NMSTMS and which data does not. Traffic Flow Maps containing nonstandard data shall provide a legend distinguishing standard data and nonstandard data, and the following statement: "NMDOT recommends that nonstandard data be used with caution."

92.1 All traffic flow maps including MPOs/Municipalities, the Interstates, and all other areas will provide a preliminary draft to the NMDOT by April 1st of each year. Comments and suggestions by the NMDOT will be returned to the MPO/Municipality by June 1st of each year with final copies prepared by September 1st. MPOs/Municipalities Traffic Flow Maps will be transmitted to the NMDOT prior to September 1st for inclusion.

93.0 Urban areas will use Annual Average Weekday Traffic (AAWDT) as the Traffic Flow Map summary statistic.

94.0 Rural areas will use AADT as the Traffic Flow Map summary statistic. In some cases Traffic Flow Maps may be generated for rural areas using AAWDT as the Traffic Flow Map summary statistic. This exception will be reserved for those rural areas that are adjacent to or heavily influenced by Urban traffic flows.

### Vehicle Miles Traveled

96.0 Daily Vehicle Miles Traveled (DVMT) will be calculated for each traffic section by multiplying the length of each unique traffic section by Annual Average Daily Traffic. Published DVMT reports must include the percentage of the estimate based on standard data.

97.0 Annual Vehicle Miles Traveled (AVMT) will be calculated for each traffic section by multiplying the DVMT by 365. Published AVMT reports must include the percentage of the estimate based on standard data.

### Traffic Monitoring Hardware and Software

98.0 The devices used to monitor traffic will accurately represent existing traffic. In addition to device type and model accuracy and precision documentation, an operation and maintenance record will be maintained for each individual device.

100.0 The NMDOT's software must be capable of handling and integrating all traffic data described in the NMSTMS, as well as electronically transmitted traffic data from other governmental agencies and private engineering consulting firms, based on a standard format identified by the department. The software must produce automatically all tables and statistics for the annual state traffic survey, and mean traffic statistics by factor groups, which are grouped by functional classification.

### Traffic Monitoring Training

103.0 The NMDOT will, if requested, conduct a Standard Description and implementation workshop open to all interested persons from the public and private sectors.

104.0 **GOAL** The NMDOT will provide training and field manuals for correct setting and operation of traffic monitoring field equipment. Field training programs will be available to MPOs, county and municipal agencies and private consulting engineering firms as requested.

105.0 All traffic data collection operations performed on public highways shall be done in accordance with Manual on Uniform traffic Control Devices (MUTCD).

### Refinement of Traffic Monitoring Standards

107.0 The current standards are related to the adequacy of factor groups, which are grouped by functional classification of roads in New Mexico. There will be a review of the factor groups a minimum of every three years. The review will be in accord with the federal guidelines related to the factor groups. The NMDOT will conduct the review of factor groups for all roads excluding the non-Interstate roads within the Urban Area Boundaries of areas with populations of 50,000 or more. MPOs and Municipalities will be responsible for review of the Urban Area Boundaries of areas with populations of 50,000 or more.

108.0 Any traffic volume, classification, speed or weight standard, definition, or calculation not specifically expressed in the NMSTMS is the standard, definition, or calculation provided in the TMG, FHWA's most current edition or the AASHTO or ASTM Guideline. Any road or intersection capacity standard, definition, or calculation not specifically expressed in the AASHTO, ASTM, or NMSTMS, is the standard, definition, or calculation provided in the Highway Capacity Manual, Transportation Research Board, as amended.

109.0 Exceptions to the NMSTMS, may be approved during the course of a year, by the NMDOT, with the concurrence of the FHWA. Exceptions may only be based on conditions not specifically considered during the standards review process and not covered by the NMSTMS and therefore prohibited. The requester must document all requests,, with basis for the request for exemption or exception. If approved, an exception must comply fully with the principle of Truth-in-Data, noting in all data transmittals that the data are based on an exemption to the exceptions must be documented and transmitted to all participants in the standards review process. The exception must be specifically acted upon during the following standards review. If the exception is not supported during the standards review, the exception may not be further used.

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# **TRADAS/CHDB/TIMS SITE ID INFORMATION**

**TRADAS CODES  
FOR CHDB TRAFFIC COUNT FILES**

**Column 1** -- Code for type of traffic count:

- A** = Automatic Traffic Recorder
- C** = Coverage
- D** = Speed
- S** = Special
- T** = Turning Movement
- W** = Weigh-In-Motion

**Columns 2 thru 7** -- Posted route: this must be a six-digit route number, as defined in the CHDB.

Examples: US0070, I00025, FL4016, IA2213 (Interstate Ramp),  
490084 (Santa Fe County Road 84).

**Column 8** -- Code for direction of traffic data:

- P** = Plus direction (milepost numbers increasing)
- M** = Minus direction (milepost numbers decreasing)
- B** = Both directions, with the Plus direction first
- Z** = Both directions, with the Minus direction first

NOTE: For one-way streets, count should be coded with a direction of P. This is because the variable NEGLANES (negative lanes) in CHDB is always zero for one-way streets, regardless of the true direction of travel.

**Columns 9 thru 15** -- Cumulative mile-point (for ATR's and MPO's), or milepost number (for coverage and special counts). Format is XXX.XXX (decimal point is necessary).

Examples: 123.821, 313.000, 000.500

**Column 16** -- Blank Space

**Column 17** -- Number of **Plus** direction channels in the count file. For example, if a count has **2** channels of data and the direction code is **B**, the number of P-direction channels must be **1**. A count with a direction code of **M** must have **zero** P-direction channels.

**Column 18** -- Beginning lane: This identifies the first lane represented by channel one. Lanes are numbered sequentially for each direction from right to left (usually driving lane to passing lane) in the direction of travel. This beginning lane code will almost always be a 1, indicating that the first lane of data in channel one is the rightmost lane. Probably the only time this code will be anything other than a 1 would be for a quad count, where the four count files each contain data for a single lane. In this case, the files will contain either a 1 or a 2 for the beginning lane code.

**Column 19** -- Channel configuration code: Indicates the nature of data contained in a channel.

- L = One lane per channel
- D = One direction per channel
- R = One channel represents the entire roadway (All lanes-all directions)
- 9 = Count file is configured in a non-standard way, or one of the above assumptions is not valid

The channels in a count file must be numbered across the road, from right to left, while facing in the direction of travel. Channel configuration must be consistent within a count file. For example, in a single count file, if channel one counts exactly 1 lane, all remaining channels must also count only 1 lane each.

**Column 20** -- Agency code: Identifies the agency submitting the count file.

- 1.) H NMDOT (NM Dept. of Transportation)
- 2.) A ABQMPO (Albuquerque MPO)
- 3.) L LACMPO(Las Cruces MPO)
- 4.) S SAFMPO(Santa Fe MPO)
- 5.) F FARMPO (Farmington MPO)

(MPO = Metropolitan Planning Organization)





**TRADAS CODES  
FOR TIMS TRAFFIC COUNT FILES**

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**Column 1** -- Code for type of traffic count:

**P** = Automatic Traffic Recorder  
**E** = Coverage

**Columns 2 thru 13** – TIMS Traffic Section ID Number: this must be a Twelve-digit number, as defined in TIMS. This is a right justified field with spaces used for empty characters:

Examples: Traffic section 1 (Eleven spaces,1)  
Traffic section 10 (Ten spaces,10)  
Traffic section 100 (Nine spaces,100)  
Traffic section 1000 (Eight spaces,1000)  
Etc.

**Column 14** -- Code for direction of traffic data:

**P** = Plus direction (milepost numbers increasing)  
**M** = Minus direction (milepost numbers decreasing)  
**B** = Both directions, with the Plus direction first  
**Z** = Both directions, with the Minus direction first

NOTE: For one-way streets, count should be coded with a direction of P. This is because the variable NEGLANES (negative lanes) in TIMS is always zero for one-way streets, regardless of the true direction of travel.

**Column 15** -- Blank Space

**Column 16** -- Number of Plus direction channels in the count file. For example, if a count has 2 channels of data and the direction code is B, the number of P-direction channels must be 1. A count with a direction code of M must have zero P-direction channels.

**Column 17** -- Beginning lane: This identifies the first lane represented by channel one. Lanes are numbered sequentially for each direction from right to left (usually driving lane to passing lane) in the direction of travel. This beginning lane code will almost always be a 1, indicating that the first lane of data in channel one is the rightmost lane. Probably the only time this code will be anything other than a 1 would be for a quad count, where the four count files each contain data for a single lane. In this case, the files will contain either a 1 or a 2 for the beginning lane code.

**Column 18** -- Channel configuration code: Indicates the nature of data contained in a channel.

- L** = One lane per channel
- D** = One direction per channel
- R** = One channel represents the entire roadway (All lanes-all directions)
- 9** = Count file is configured in a non-standard way, or one of the above assumptions is not valid

The channels in a count file must be numbered across the road, from right to left, while facing in the direction of travel. Channel configuration must be consistent within a count file. For example, in a single count file, if channel one counts exactly 1 lane, all remaining channels must also count only 1 lane each.

**Column 19** -- Agency code: Identifies the agency\* submitting the count file.

- 1.) **H** NMSHTD (NM State Highway & Trans. Dept.)
- 2.) **A** ABQMPO (Albuquerque MPO)
- 3.) **L** LACMPO (Las Cruces MPO)
- 4.) **S** SAFMPO (Santa Fe MPO)
- 5.) **1** NWRPO (NorthWest RPO)
- 6.) **2** NRRPO (Northern Rio Grande RPO)
- 7.) **3** MRGRPO (Middle Rio Grande RPO)
- 8.) **4** NERPO (North East RPO)
- 9.) **5** SWRPO (South West RPO)
- 10.) **6** SCRPO (South Central RPO)
- 11.) **7** SERPO (South East RPO)

\* (MPO = Metropolitan Planning Organization)  
(RPO = Regional Planning Organization)

**Column 20** – Number of Counts completed within a Traffic Section during the same count session. This number will almost always be one, unless a special count request is being completed with multiple counts in the same section needed. Then the counts will be numbered in the order that they are completed, with a P and M count being the same number to match the traffic together in TRADAS.

- Examples: Traffic count one with B directions will be coded 1.  
Traffic count two with P direction will be coded 2.  
Traffic count three with M direction will be coded 2.  
Traffic count four with B directions will be coded 3.  
Etc.

Complete traffic count identifier, followed by the five configuration codes.

Example: E 35420B 11DH1

Column 1.... **E** -- Coverage count  
Column 2.... -- Blank Traffic Section ID  
Column 3.... -- Blank Traffic Section ID  
Column 4.... -- Blank Traffic Section ID  
Column 5.... -- Blank Traffic Section ID  
Column 6.... -- Blank Traffic Section ID  
Column 7.... -- Blank Traffic Section ID  
Column 8.... -- Blank Traffic Section ID  
Column 9.... **3** -- Traffic Section ID  
Column 10.... **5** -- Traffic Section ID  
Column 11.... **4** -- Traffic Section ID  
Column 12.... **2** -- Traffic Section ID  
Column 13.... **0** -- Traffic Section ID  
Column 14.... **B** -- Both traffic directions  
Column 15.... -- Blank space here  
Column 16.... **1** -- Number of Plus direction channels in the count file  
Column 17.... **1** -- 1st lane represented by channel 1 (Driving lane, + dir.)  
Column 18.... **D** -- # of lanes & directions in a channel (One dir. per channel)  
Column 19.... **H** -- Identifies agency submitting the count file  
Column 20.... **1** -- Identifies the count number in the Traffic Section

## Devices that Process Thru TRADAS

DEVMAKE -----	DEVMODEL -----	PROMLO -----	PROMHI -----
AARB	Culway WIM System		
C-Card file	C-Card file		
Diamond Traffic Products	GK Serial Port		
Diamond Traffic Products	Pegasus	1.0+	
Diamond Traffic Products	Phoenix	1.0+	
Diamond Traffic Products	Sprite		
Diamond Traffic Products	TCC-540		
Diamond Traffic Products	Toll Station		
Diamond Traffic Products	Traffic Database		
Diamond Traffic Products	Traffic Tally 2001	1.0	1.99
Diamond Traffic Products	Traffic Tally 2001	2.0	2.99
Diamond Traffic Products	Traffic Tally 2001	3.0+	
Diamond Traffic Products	Traffic Tally 501	1.0	1.99
Diamond Traffic Products	Traffic Tally 501	2.0+	
Diamond Traffic Products	Traffic Tally 501		
Diamond Traffic Products	Traffic Tally 502	1.0+	
Diamond Traffic Products	Traffic Tally 74		
Diamond Traffic Products	Unicorn	1.0+	
ECM	Hestia Piezo WIM		
ECM	Hestia statfile		
Golden River	660	1.0+	
Golden River	Archer	1.0+	
Golden River	Marksman 300 Series	1.0+	
ITC	AWACS		
ITC	XTX--form		
ITC			
ITC - PRN Format	ITC		
International Road Dynamics	TCC-500	3.0+	
International Road Dynamics	TCC-540	1.0+	
International Road Dynamics	Weigh In Motion	1.0+	
Jamar	Petra (new)		
Jamar	Petra (old)		
Jamar	TWF		
MRWA	Manual Class		
Microcom	Class Counters		
Mitron	Scout 3000		
Mitron	Scout 4000		
NuMetrics			
NuMetrics	Histar		

PAT	DAW100	3.6+	
PAT	DAW100	8.5+	
Peek Traffic	241	3.5	3.79
Peek Traffic	241	3.8+	
Peek Traffic	5150 WIM		
Peek Traffic	560 Controller		
Peek Traffic	ADR-1000	1.0+	
Peek Traffic	ADR-2000	1.0+	
Peek Traffic	ADR-3000	1.0+	
Peek Traffic	South Dakota WIM		
Peek Traffic	TAM	1.0+	
TDL		1	1
TDL		1	1
TimeMark	VIAS Vehicle		
TimeMark	VIAS Volume		
TransCore	San Jose S2000		
Unk Man Vol	Unk Man Vol		
W-Card file	W-Card file		
WAVETRONICS	WAVETRONICS		
4-Card file	4-Card file		
7-Card file	7-Card file		