

---

# 2008 Pennsylvania Traffic Data

---



**Bureau of Planning and Research  
Transportation Planning Information Division**

In cooperation with:  
US Department of Transportation  
Federal Highway Administration  
**PUB 601 (6-09)**



**On The Cover:**  
Lewistown Narrows, Mifflin County

## Table of Contents

|   |           |
|---|-----------|
| <b>Table of Contents</b> .....  | <b>1</b>  |
| <b>Introduction</b> .....   | <b>2</b>  |
| How to Use This Booklet .....   | 2         |
| <b>New Developments and Enhancements</b> .....                                    | <b>3</b>  |
| ATR/CAVC Conversion Project .....   | 3         |
| Local Local Data Collection .....   | 3         |
| <b>Traffic Data Collection</b> .....  | <b>4</b>  |
| Type of Data Collected .....  | 4         |
| Traffic Data Collection Sources .....   | 5         |
| <b>Automatic Traffic Recorders (ATRs)</b> .....                                   | <b>6</b>  |
| Traffic Pattern Group (TPG) .....   | 7         |
| ATR Station Locations .....   | 8         |
| Strategic Highway Research Program (SHRP) .....                                   | 10        |
| ATR and SHRP Weigh-in-Motion (WIM) Location Map .....                             | 11        |
| ATR Site Locations by TPG .....   | 12        |
| 2008 Peak Hour Summary by TPG .....   | 14        |
| 2008 30th Highest Hour Summary by TPG .....                                       | 16        |
| 2008 50th Highest Hour Summary by TPG .....                                       | 18        |
| 2008 Design Hour Summaries (Charts) .....   | 20        |
| Five Year Summary of Annual Average Daily Traffic (AADT) From ATRs .....          | 22        |
| Statewide Traffic Trends (Table) .....  | 24        |
| Statewide Traffic Trends (Chart) .....  | 25        |
| Heaviest Holiday Travel Periods: 2008 .....                                       | 26        |
| <b>Factoring Process</b> .....  | <b>28</b> |
| Traffic Adjustment Factors .....  | 28        |
| Table 350: Hourly Percentages Compiled for Total Vehicles .....                   | 29        |
| Table 360: Hourly Percentages Compiled for Truck Traffic .....                    | 34        |
| Hourly Percentages: Total Vehicles (Chart) .....                                  | 36        |
| Hourly Percentages: Truck Traffic (Chart) .....                                   | 36        |
| Table 355: Average Day of Week by Month Factors Compiled for Total Vehicles ..... | 37        |
| Monthly Variation Charts By Traffic Pattern Group (TPG) .....                     | 42        |
| Table 365: Average Day of Week by Month Factors Compiled for Truck Traffic .....  | 43        |
| Table 370: Yearly Growth Factors .....  | 44        |
| Functional Class Groups (FCGs) .....  | 45        |
| Table 380: Axle Correction Factors .....  | 46        |
| Table 385: Design Hour Factor Default Value .....                                 | 47        |
| Table 390: Rigid Equivalent Single Axle Load (ESAL) Factors .....                 | 48        |
| Table 395: Flexible ESAL Factors .....  | 48        |
| Roadway Management System (RMS) Factor Table Application Flow Chart .....         | 49        |
| <b>Acronyms</b> .....   | <b>50</b> |
| <b>Index</b> .....  | <b>51</b> |

## Introduction

The “Pennsylvania Traffic Data Book” documents procedures for developing accurate estimates of highway traffic volumes based on sample traffic counts.

Traffic information is critical in transportation decision-making related to highway funding, traffic engineering, highway design, air quality analysis, planning and programming, as well as winter services, highway maintenance and construction.

The “Pennsylvania Traffic Data Book” provides current traffic expansion factors through the use of tables, charts, and graphs. Expansion factors allow the traffic professional to use a sample traffic count and develop reliable and comparable Annual Average Daily Traffic (AADT) estimates. All tables & charts in the “Pennsylvania Traffic Data Book” are derived from the 57 permanent ATR site data.

## How to Use this Booklet

This booklet provides current traffic expansion factors through the use of tables, charts, and graphs. All of the tables, charts, and graphs are listed in the Table of Contents. Refer to the description provided with each table, chart, and graph to ensure that the data presented is what you need.

Acronyms are used quite often throughout this publication. A complete list of acronyms and their meanings are located in the back of the booklet. In addition, an index was created for this booklet to help you find a particular topic quickly.

We would appreciate any comments or suggestions you can provide on information presented in this booklet. Questions or comments relating to data presented in this publication can be directed to:

Joseph E. Piper, Jr.  
Telephone: (717) 214-8687  
Fax: (717) 783-9152  
Email: josephpipe@state.pa.us

The 2008 Traffic Data Book and County Traffic Volume Maps are available free on our website!

[www.dot.state.pa.us](http://www.dot.state.pa.us)  
Select: More Links...  
Scroll to: Transportation Planning  
Select: Traffic Information  
Select: Traffic Volume Maps or Traffic Data Report

Traffic Volume Maps can be purchased through our Maps and Publications Sales Store by calling (717) 787-6746.

## New Developments and Enhancements

### ATR/CAVC Conversion Project

The Bureau of Planning and Research (BPR) is currently in the process of converting Automatic Traffic Recorder (ATR) sites which only collect vehicle volume to Continuous Automatic Vehicle Classification (CAVC) sites. The upgrade/conversion will allow BPR to collect 13 different vehicle classifications required by the Federal Highway Administration (FHWA); including collection and reporting of motorcycle travel data. In addition, FHWA has amended the Traffic Monitoring Guide (TMG) and added new requirements for motorcycle correction factors. To be able to meet the new requirements, PennDOT, must have at least 5 Continuous Automatic Vehicle Classification CAVC sites per traffic pattern group (TPG). With the available funding, BPR will be able to upgrade/convert 17 ATR sites and have 2 CAVC sites per TPG when the project is completed.

An Invitation to Bid was issued by BPR for this conversion work. Transys Services Company, LLC was the successful bidder. All conversions will be completed by June 30, 2009.

### Local Road Traffic Counting Project

Pennsylvania's 2,562 municipalities own 77,126 linear miles of road. 3,321 linear miles of municipal owned roads are on the Federal-Aid System. These roads on the Federal-Aid System are scheduled for traffic counts on a five year cycle. However, the remaining 73,805 linear miles do not have traffic counts taken on a regular basis.

In order to develop a statistically valid method of estimating traffic on these municipal owned roads, the Bureau entered into a research contract with French Engineering of Smithfield, PA. The vendor determined that the best method to estimate traffic on these roads was to look at each county individually and the amount of municipal owned rural, small urban, and urbanized mileage in each county. It was recommended that approximately one in every seven miles of urban road and one in every ten miles of rural road be counted. Approximately 7,200 additional traffic counts would be required using this method. A randomly selected group of data collection sites was provided by the vendor.

With the assistance of a \$450,000 grant from the Bureau of Highway Safety and Traffic Engineering, the Bureau of Planning and Research is using the statewide Traffic Counting Services contract to collect traffic data on all 7,200 local road samples. The approved vendors began data collection on March 2, 2009 and will complete collection by June 30, 2009. Following this initial collection of traffic data, these counts will be placed on a ten year cycle.



Lewistown Narrows in Mifflin County



## Traffic Data Collection

Traffic data is collected on 40,000 miles of PennDOT owned roads and 3,300 miles of local federal aid roads in Pennsylvania. Approximately 7,000 raw traffic counts are collected per year by:

- PennDOT Engineering Districts
- Fifteen Metropolitan Planning Organizations (MPOs)
- Two Rural Planning Organizations (RPOs)
- Contractors

**Volume:** The majority of the counts taken as part of our statewide count program record volume of traffic on a roadway. Volume is usually expressed as Annual Average Daily Traffic, (AADT) which represents traffic volume over an average 24-hour period.

**Classification:** One method of data collection used for our count program is vehicle classification. Vehicles are classified into 13 classes ranging from cars to trucks in accordance with the Federal Highway Administration vehicle classification scheme.

**Weight:** Truck weight data is collected from 12 Weigh-In-Motion stations.

**Speed:** Speed data is collected from 8 Automatic Traffic Recorders.



Traffic Count set in Juniata County

## Traffic Data Collection Sources

### Automatic Traffic Recorders (ATRs)

57 ATRs strategically located throughout the state count volume and speed data on a continuous basis 365 days per year. A map showing the locations of ATRs throughout the state is provided on page 11.

### Short-Term In-Pavement Sites (STIP)

Approximately 200 inductive loop sites, referred to as STIP sites are installed throughout the state of Pennsylvania. Volume data is collected from these permanent sites for a 24-hour period, once a year.

### Continuous Automatic Vehicle Classifier (CAVC)

5 CAVC sites collect continuous vehicle classification data. A map showing CAVC locations is provided on page 11.

### Weigh-In-Motion (WIM)

12 WIM stations provide continuous truck weight and vehicle classification data. WIM stations are shown on the map on page 11.

### Pneumatic Tubes

The majority of the counts are collected using pneumatic tubes. Axle counts are collected using a traffic counting device in association with a single pneumatic tube stretched across the roadway. An axle correction factor is applied to adjust vehicle axle base data for the incidence of vehicles with more than two axles.

Two tubes are used to count and classify vehicles by type based on axle configuration.

### Manual Counts

Manual counts are taken on sections of roadways that are not accessible to automated data collection equipment or have safety limitations. Observers classify vehicles by type based on axle configuration.

### Toll Receipts

The Delaware River Joint Toll Bridge Commission and the Delaware River Port Authority document traffic between Pennsylvania and New Jersey.

The Pennsylvania Turnpike Commission toll receipt surveys provide automobile and truck data on the Commonwealth's toll roads.

## Automatic Traffic Recorders (ATRs)

Pennsylvania maintains Automatic Traffic Recorders (ATRs) at 57 strategically selected locations throughout the state. These ATRs collect traffic volume data on a continuous basis throughout the year. This data is used to develop daily and seasonal factors, as well as to identify changes in traffic patterns. Based on a research study performed by Pennsylvania State University and West Virginia University, it was determined that PennDOT ATR locations in the traffic pattern groups were acceptable according to the FHWA Traffic Monitoring Guide.



ATR 27 in Elk County

The ATRs use magnetic loops embedded in the pavement for vehicle detection. The data is stored on site in traffic counters, prior to being automatically polled every night through the use of modems located at each ATR site.



## Traffic Pattern Group (TPG)

Highway traffic characteristics can vary by geographical area, roadway type, and population density. Therefore, individual traffic volume counts are categorized into one of ten Traffic Pattern Groups (TPGs). The TPGs are based on highway functional classification, geographic area, and urban/rural characteristics. (See map on pg. 11) Each ATR is associated with one of the ten TPGs listed below.

| TRAFFIC PATTERN GROUP | DESCRIPTION                                      |
|-----------------------|--|
| TPG 1                 | URBAN - INTERSTATE                               |
| TPG 2                 | RURAL - INTERSTATE                               |
| TPG 3                 | URBAN - OTHER PRINCIPAL ARTERIALS                |
| TPG 4                 | RURAL - OTHER PRINCIPAL ARTERIALS                |
| TPG 5                 | URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS |
| TPG 6                 | NORTH RURAL - MINOR ARTERIALS                    |
| TPG 7                 | CENTRAL RURAL- MINOR ARTERIALS                   |
| TPG 8                 | NORTH RURAL - COLLECTORS AND LOCAL ROADS         |
| TPG 9                 | CENTRAL RURAL- COLLECTORS AND LOCAL ROADS        |
| TPG 10                | SPECIAL RECREATIONAL                             |

ATR data is used in computing:

- Daily, monthly, and seasonal adjustment factors by highway functional classification and geographic location.
- Yearly growth factors which are used to update older counts in the Department's Roadway Management System (RMS).
- Design hour factors (peak hour, 30th highest and 50th highest hour) used for the design of highways.

## Automatic Traffic Recorder (ATR) Station Locations

This chart lists the ATR stations by number, county, municipality, traffic route number, state route (SR), segment, and also by a physical description of where the ATR is located in the state.

\* Indicates ATR site data is also used for the Department's Speed Monitoring Program.

\*\* Indicates road is not a PA, US, or Interstate Route

| ATR # | COUNTY      | MUNICIPALITY       | ROUTE      | SR   | SEGMENT | LOCATION  |
|-------|-------------|--------------------|------------|------|---------|---|
| 2     | Crawford    | Richmond Twp.      | PA 77      | 77   | 270     | 0.7 mi. W of PA 408 (New Richmond)                      |
| 3     | Clearfield  | Huston Twp.        | PA 255     | 255  | 280     | 1.4 mi. N of PA 153 (Penfield)                          |
| 4     | Tioga       | Delmar Twp.        | US 6       | 6    | 400     | 0.9 mi. W of PA 287 (Wellsboro)                         |
| 5     | Bradford    | Sheshequin Twp.    | **         | 1043 | 10      | 0.1 mi. NW of SR 1041 (North Towanda)                   |
| 8     | Montgomery  | Whitemarsh Twp.    | PA 73      | 73   | 530     | 1.4 mi. NW of PA 309-Skipack Pike (Whitemarsh)          |
| 15    | Fulton      | Todd Twp.          | US 522     | 522  | 540     | 1.3 mi. N of US 30 (McConnellsburg)                     |
| 18    | Butler      | Summitt Twp.       | PA 38      | 38   | 20      | 0.7 mi. NW of PA 68 (Butler)                            |
| 19    | Washington  | Union Twp.         | PA 88      | 88   | 750     | 0.4 mi. S of SR1006-Washington Ave. (Finleyville)       |
| 20    | Lawrence    | Shenango Twp.      | PA 65      | 65   | 270     | 0.6 mi. S of US 422 (New Castle)                        |
| 27    | Elk         | Highland Twp.      | PA 66/948  | 66   | 60      | 0.2 mi. W of De-Young Post Office (Russell City)        |
| 29    | Susquehanna | Rush Twp.          | PA 267     | 267  | 190     | 0.9 mi. S of PA 706 (Lawton)                            |
| 48    | Susquehanna | New Milford Twp.   | US 11      | 11   | 420     | 0.8 mi. SW of PA 848/492 (New Milford)                  |
| 51    | Potter      | Eulalia Twp.       | PA 44      | 44   | 700     | 0.7 mi. N of Coudersport Boro Line (Coudersport)        |
| 203   | Allegheny   | Leetsdale          | PA 65      | 65   | 270     | 0.6 mi. S of Beaver County Line (Leetsdale)             |
| 206   | Cumberland  | Wormleysburg       | Taylor Br. | 1014 | 30      | 230' E of Second St. (Wormleysburg)                     |
| 207*  | Erie        | Springfield Twp.   | I-90       | 90   | 10      | 1.0 mi. E of Ohio Line (West Springfield)               |
| 208   | Allegheny   | Monroeville        | I-376      | 376  | 120     | 2.2 mi. W of PA 48-Exit 14 (Monroeville)                |
| 210   | Cumberland  | Lemoyne            | I-83       | 83   | 416     | 0.6 mi. SW of York Ramp on John Harris Bridge (Lemoyne) |
| 216*  | Susquehanna | Great Bend Twp.    | I-81       | 81   | 2314    | 1.1 mi. N of PA 171 (Great Bend)                        |
| 301   | Erie        | Lawrence Park Twp. | PA 5       | 5    | 680     | 0.3 mi. E of Erie City Line (Erie)                      |
| 306   | Pike        | Palmyra Twp.       | PA 507     | 507  | 280     | 0.9 mi. S of US 6 (Hawley)                              |
| 323   | Bedford     | Bedford Twp.       | US 220     | 220  | 310     | 0.7 mi. S of Business US 220 (Bedford Springs)          |
| 326   | Clarion     | Paint Twp.         | US 322     | 322  | 280     | 0.5 mi. E of PA 66 (Clarion)                            |
| 328   | Centre      | Boggs Twp.         | PA 150     | 150  | 194     | 1.1 mi. N of I-80 (Milesburg)                           |
| 330   | Bucks       | Northampton Twp.   | PA 532     | 532  | 130     | 1.4 mi. SW of PA 413 (Newtown)                          |
| 334   | York        | W. Manchester Twp. | US 30      | 30   | 170     | 0.7 mi. W of PA 116 (Thomasville)                       |
| 349   | Lehigh      | Upper Saucon Twp.  | PA 309     | 309  | 30      | 0.7 mi. S of PA 378 (Coopersburg)                       |
| 360   | Clearfield  | Bloom Twp.         | US 219     | 219  | 670     | 3.2 mi. S of US 322 (Luthersburg)                       |

## Automatic Traffic Recorder (ATR) Station Locations (Continued)

\* Indicates ATR site data is also used for the Department's Speed Monitoring Program.

\*\* Indicates road is not a PA, US, or Interstate Route

| ATR # | COUNTY       | MUNICIPALITY       | ROUTE    | SR   | SEGMENT | LOCATION   |
|-------|--------------|--------------------|----------|------|---------|--|
| 362   | York         | North Codorus Twp. | PA 616   | 616  | 240     | 2 mi. S of New Salem Boro                              |
| 363   | McKean       | Lafayette Twp.     | US 219   | 219  | 290     | 0.1 mi. N of PA 59 (Lewis Run)                         |
| 364   | Lackawanna   | Newton Twp.        | PA 307   | 307  | 360     | 50' NW of SR 4017 (Clarks Summitt)                     |
| 367   | Union        | West Buffalo Twp.  | PA 45    | 45   | 250     | 0.6 mi. W of PA 104 (Mifflinburg)                      |
| 370   | Westmoreland | Rostraver Twp.     | I-70     | 70   | 454     | 0.9 mi. W of PA 51-Exit 46 (Uniontown)                 |
| 371*  | Fulton       | Brush Creek Twp.   | I-70     | 70   | 1522    | 5.1 mi. S of US 30 (Crystal Springs)                   |
| 372*  | Union        | White Deer Twp.    | I-80     | 80   | 2104    | 0.9 mi. W of I-180 (Milton)                            |
| 374*  | Butler       | Lancaster Twp.     | I-79     | 79   | 904     | 2.2 mi. N of PA 68-Exit 87 (Zelienople)                |
| 375   | Allegheny    | N. Fayette Twp.    | US 22/30 | 22   | 80      | 0.8 mi. E of PA 978 (Imperial)                         |
| 376   | Luzerne      | Wilkes-Barre Twp.  | I-81     | 81   | 1664    | 0.7 mi. N of PA 309-Exit 165 (Wilkes-Barre)            |
| 377*  | Bucks        | Bristol Twp.       | I-95     | 95   | 404     | 2.5 mi. S of US 1/PA 413 (PennDel)                     |
| 378   | Fayette      | Redstone Twp.      | US 40    | 40   | 160     | 5.6 mi. W of US 119 (Brier Hill)                       |
| 379   | Blair        | Logan Twp.         | **       | 4013 | 80      | 0.5 mi. SE of SR 4015 (Altoona)                        |
| 380   | Berks        | St. Lawrence       | PA 562   | 562  | 40      | 0.3 mi. W of SR 2033 (St. Lawrence)                    |
| 381   | Mercer       | Hermitage Twp.     | **       | 3019 | 20      | 0.8 mi. N of PA 718 (Sharon)                           |
| 382   | Cambria      | Lower Yoder Twp.   | **       | 3005 | 40      | 0.4 mi. SW of Johnstown City Line (Morrelville)        |
| 383   | Clinton      | Chatham Run        | PA 150   | 150  | 360     | 0.7 mi. E of SR 1005 (Chatham Run)                     |
| 384   | Tioga        | Lawrence Twp.      | **       | 4022 | 50      | 1.9 mi. from PA 49 on Lakeview Dr. (Nelson)            |
| 385   | Warren       | Southwest Twp.     | **       | 3002 | 30      | 1.7 mi. W of PA 27 (Enterprise)                        |
| 386   | Montour      | Limestone Twp.     | PA 254   | 254  | 10      | 1.9 mi. E of I-80 (Limestoneville)                     |
| 387   | Somerset     | Brothers Valley    | **       | 2031 | 120     | 2.0 mi. SW of US 219 (Garrett)                         |
| 388   | Monroe       | Ross Twp.          | **       | 3004 | 170     | 0.4 mi. SW of SR 3015-Rolling Hill Road. (Saylorsburg) |
| 389   | Jefferson    | Perry Twp.         | PA 536   | 536  | 210     | 3.5 mi. W of PA 36 (Frostburg)                         |
| 390   | Lancaster    | West Donegal Twp.  | PA 230   | 230  | 20      | 1.9 mi. W of PA 743/241 (Elizabethtown)                |
| 391   | Chester      | Warwick Twp.       | PA 23    | 23   | 110     | 1.4 mi. E of PA 345 (Warwick Area)                     |
| 392*  | Luzerne      | Foster Twp.        | I-80     | 80   | 2684    | 5.9 mi. E of PA 309 (White Haven)                      |
| 393*  | Washington   | Donegal Twp.       | I-70     | 70   | 2       | At the West Virginia State Line (West Alexander)       |
| 394   | Lehigh       | Upper Saucon Twp.  | I-78     | 78   | 614     | 1.5 mi. W of Northampton County Line (Allentown)       |
| 395   | Fayette      | German Twp.        | PA 21    | 21   | 230     | 0.1 mi. E of SR 3023 (Footdale Rd)                     |

## Strategic Highway Research Program (SHRP) and LTPP

The Strategic Highway Research Program (SHRP) was authorized by the U.S. Congress in 1987 as a five-year research initiative. The focus of this initiative was to develop and evaluate technologies and techniques to improve the performance, safety, durability, and efficiency of the nation's highways. SHRP was directed by a committee of managers from state highway agencies, industry, and academia, and operated as a unit of the National Research Council. Research was concentrated in asphalt, concrete and structures, highway operations, and pavement performance.

The Federal Highway Administration assumed coordination of a national program to move the products evaluated or developed under SHRP to the state and local agencies upon completion of the research phase.

The Long Term Pavement Performance (LTPP) program was established under SHRP and is currently managed by FHWA. LTPP, which is a 20-year study of in-service pavements, provides the basis for pavement design, maintenance, rehabilitation, and construction methodologies. The Bureau supports this program by collecting weight and vehicle classification data and reporting the data to LTPP.

## ATR and SHRP Weigh-In-Motion Locations Map (Opposite)

The ATR, SHRP, and WIM locations map of Pennsylvania, which is shown on the following page, gives an overview of where all of the ATRs and SHRP Weigh-In-Motion sites are located. Symbols are used in addition to the site number to identify the location of the site.



Electric Avenue Interchange near Lewistown





## ATR Site Locations by Traffic Pattern Group (TPG)

This chart groups the ATR site locations by Traffic Pattern Group. It gives the ATR number, route, and the urban area or county depending on the TPG into which the ATR falls. The Annual Average Daily Traffic (AADT) for each ATR is also listed on this chart.

| ATR SITE LOCATIONS BY TPG |       |              |         |                         |       |              |        |
|---------------------------|-------|--------------|---------|-------------------------|-------|--------------|--------|
| TPG 1: URBAN INTERSTATE   |       |              |         | TPG 2: RURAL INTERSTATE |       |              |        |
| ATR                       | ROUTE | URBAN AREA   | AADT    | ATR                     | ROUTE | COUNTY       | AADT   |
| 208                       | I-376 | PITTSBURGH   | 64,510  | 207                     | I-90  | ERIE         | 21,402 |
| 210                       | I-83  | HARRISBURG   | 115,527 | 216                     | I-81  | SUSQUEHANNA  | 26,915 |
| 376                       | I-81  | WILKES-BARRE | 61,733  | 370                     | I-70  | WESTMORELAND | 32,519 |
| 377                       | I-95  | PHILADELPHIA | 54,531  | 371                     | I-70  | FULTON       | 18,680 |
| 394                       | I-78  | ALLENTOWN    | 55,137  | 372                     | I-80  | UNION        | 26,543 |
|                           |       |              |         | 374                     | I-79  | BUTLER       | 32,253 |
|                           |       |              |         | 392                     | I-80  | LUZERNE      | 23,035 |
|                           |       |              |         | 393                     | I-70  | WASHINGTON   | 30,513 |

| ATR SITE LOCATIONS BY TPG       |               |              |        |                                 |        |            |        |
|---------------------------------|---------------|--------------|--------|---------------------------------|--------|------------|--------|
| TPG 3: URBAN PRINCIPAL ARTERIAL |               |              |        | TPG 4: RURAL PRINCIPAL ARTERIAL |        |            |        |
| ATR                             | ROUTE         | URBAN AREA   | AADT   | ATR                             | ROUTE  | COUNTY     | AADT   |
| 8                               | PA 73         | PHILADELPHIA | 16,270 | 4                               | US 6   | TIOGA      | 2,741  |
| 203                             | PA 65         | PITTSBURGH   | 20,589 | 19                              | PA 88  | WASHINGTON | 5,587  |
| 206                             | H. Taylor Br. | HARRISBURG   | 28,350 | 323                             | US 220 | BEDFORD    | 3,757  |
| 301                             | PA 5          | ERIE         | 14,757 | 326                             | US 322 | CLARION    | 9,594  |
| 330                             | PA 532        | PHILADELPHIA | 11,371 | 334                             | US 30  | YORK       | 17,379 |
| 375                             | US 22/30      | PITTSBURGH   | 23,479 | 349                             | US 309 | LEHIGH     | 37,130 |
|                                 |               |              |        | 360                             | US 219 | CLEARFIELD | 2,500  |
|                                 |               |              |        | 363                             | US 219 | MCKEAN     | 4,817  |
|                                 |               |              |        | 378                             | US 40  | FAYETTE    | 10,446 |
|                                 |               |              |        | 395                             | PA 21  | FAYETTE    | 10,971 |

## ATR Site Locations by TPG (Continued)

| ATR SITE LOCATIONS BY TPG             |         |            |       |                                   |           |             |       |
|---------------------------------------|---------|------------|-------|-----------------------------------|-----------|-------------|-------|
| TPG 5: URBAN MINOR ARTERIAL/COLLECTOR |         |            |       | TPG 6: NORTH RURAL MINOR ARTERIAL |           |             |       |
| ATR                                   | ROUTE   | URBAN AREA | AADT  | ATR                               | ROUTE     | COUNTY      | AADT  |
| 18                                    | PA 38   | BUTLER     | 6,545 | 2                                 | PA 77     | CRAWFORD    | 2,016 |
| 20                                    | PA 65   | NEW CASTLE | 7,381 | 3                                 | PA 255    | CLEARFIELD  | 5,448 |
| 379                                   | SR 4013 | ALTOONA    | 1,439 | 27                                | PA 66/948 | ELK         | 2,688 |
| 380                                   | PA 562  | READING    | 9,399 | 48                                | US 11     | SUSQUEHANNA | 4,610 |
| 381                                   | SR 3019 | SHARON     | 537   | 51                                | PA 44     | POTTER      | 3,195 |
| 382                                   | SR 3005 | JOHNSTOWN  | 1,782 | 328                               | PA 150    | CENTRE      | 4,944 |

| ATR SITE LOCATIONS BY TPG           |        |           |       |                              |         |             |       |
|-------------------------------------|--------|-----------|-------|------------------------------|---------|-------------|-------|
| TPG 7: CENTRAL RURAL MINOR ARTERIAL |        |           |       | TPG 8: NORTH RURAL COLLECTOR |         |             |       |
| ATR                                 | ROUTE  | COUNTY    | AADT  | ATR                          | ROUTE   | COUNTY      | AADT  |
| 15                                  | US 522 | FULTON    | 5,564 | 5                            | SR 1043 | BRADFORD    | 1,327 |
| 367                                 | PA 45  | UNION     | 5,894 | 29                           | PA 267  | SUSQUEHANNA | 1,163 |
| 390                                 | PA 230 | LANCASTER | 6,267 | 383                          | PA 150  | CLINTON     | 4,223 |
| 391                                 | PA 23  | CHESTER   | 8,170 | 384                          | SR 4022 | TIOGA       | 584   |
|                                     |        |           |       | 385                          | SR 3002 | WARREN      | 1,844 |

| ATR SITE LOCATIONS BY TPG      |         |            |       |                              |        |        |       |
|--------------------------------|---------|------------|-------|------------------------------|--------|--------|-------|
| TPG 9: CENTRAL RURAL COLLECTOR |         |            |       | TPG 10: SPECIAL RECREATIONAL |        |        |       |
| ATR                            | ROUTE   | COUNTY     | AADT  | ATR                          | ROUTE  | COUNTY | AADT  |
| 362                            | PA 616  | YORK       | 5,927 | 306                          | PA 507 | PIKE   | 5,784 |
| 364                            | PA 307  | LACKAWANNA | 5,192 |                              |        |        |       |
| 386                            | PA 254  | MONTOUR    | 2,271 |                              |        |        |       |
| 387                            | SR 2031 | SOMERSET   | 3,164 |                              |        |        |       |
| 388                            | SR 3004 | MONROE     | 3,358 |                              |        |        |       |
| 389                            | PA 536  | JEFFERSON  | 2,158 |                              |        |        |       |

## 2008 Peak Hour by Traffic Pattern Group (TPG)

| 2008 Peak Hour by Traffic Pattern Group (TPG) |       |              |     |        |        |         |                         |       |              |     |        |        |        |
|---|-------|--------------|-----|--------|--------|---------|-------------------------|-------|--------------|-----|--------|--------|--------|
| TPG 1: Urban Interstate                       |       |              |     |        |        |         | TPG 2: Rural Interstate |       |              |     |        |        |        |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT    | ATR                     | Date  | Hour (start) | DOW | Volume | % AADT | AADT   |
| 208   | 6/26  | 5:00 PM      | Thu | 6,340  | 9.83%  | 64,510  | 216                     | 11/23 | 1:00 PM      | Sun | 4,737  | 17.60% | 26,915 |
| 210   | 2/1   | 7:00 AM      | Fri | 11,029 | 9.55%  | 115,528 | 370                     | 2/24  | 4:00 AM      | Sun | 4,271  | 13.13% | 32,519 |
| 376   | 11/19 | 4:00 PM      | Wed | 6,443  | 10.44% | 61,733  | 371                     | 11/23 | 12:00 PM     | Sun | 3,548  | 18.99% | 18,680 |
| 377   | 3/28  | 5:00 PM      | Fri | 5,895  | 10.81% | 54,530  | 372                     | 11/30 | 2:00 PM      | Sun | 4,563  | 17.19% | 26,543 |
| 394   | 11/26 | 3:00 PM      | Wed | 7,232  | 13.12% | 55,136  | 374                     | 8/29  | 5:00 PM      | Fri | 4,324  | 13.41% | 32,253 |
|   |       |              |     |        |        |         | 392                     | 11/23 | 4:00 PM      | Sun | 3,845  | 16.69% | 23,035 |
|   |       |              |     |        |        |         | 393                     | 11/23 | 2:00 PM      | Sun | 4,463  | 14.63% | 30,513 |

| 2008 Peak Hour by Traffic Pattern Group (TPG) |      |              |     |        |        |        |                                 |       |              |     |        |        |        |
|---|------|--------------|-----|--------|--------|--------|---------------------------------|-------|--------------|-----|--------|--------|--------|
| TPG 3: Urban Principal Arterial               |      |              |     |        |        |        | TPG 4: Rural Principal Arterial |       |              |     |        |        |        |
| ATR   | Date | Hour (start) | DOW | Volume | % AADT | AADT   | ATR                             | Date  | Hour (start) | DOW | Volume | % AADT | AADT   |
| 8   | 2/13 | 7:00 AM      | Wed | 1,971  | 12.11% | 16,271 | 4                               | 11/23 | 12:00 PM     | Sun | 705    | 25.72% | 2,741  |
| 203   | 5/6  | 4:00 PM      | Tue | 2,247  | 10.91% | 20,589 | 19                              | 11/3  | 7:00 AM      | Mon | 819    | 14.66% | 5,586  |
| 206   | 1/15 | 7:00 AM      | Tue | 4,147  | 14.63% | 28,350 | 323                             | 8/8   | 3:00 PM      | Fri | 508    | 13.52% | 3,757  |
| 301   | 7/16 | 11:00 AM     | Wed | 7,213  | 48.88% | 14,758 | 326                             | 10/27 | 5:00 PM      | Mon | 1,261  | 13.15% | 9,593  |
| 330   | 3/28 | 5:00 PM      | Fri | 1,233  | 10.84% | 11,371 | 334                             | 11/25 | 5:00 PM      | Tue | 2,138  | 12.30% | 17,380 |
| 375   | 8/26 | 5:00 PM      | Tue | 2,964  | 12.62% | 23,479 | 349                             | 4/25  | 4:00 PM      | Fri | 3,572  | 9.62%  | 37,130 |
|   |      |              |     |        |        |        | 360                             | 2/4   | 7:00 AM      | Mon | 1,246  | 49.86% | 2,499  |
|   |      |              |     |        |        |        | 363                             | 4/16  | 4:00 PM      | Wed | 631    | 13.10% | 4,817  |
|   |      |              |     |        |        |        | 378                             | 10/30 | 9:00 AM      | Thu | 1,185  | 11.34% | 10,446 |
|   |      |              |     |        |        |        | 395                             | 10/31 | 5:00 PM      | Fri | 1,283  | 11.70% | 10,970 |



### 2008 Peak Hour by TPG (Continued)

| 2008 Peak Hour by Traffic Pattern Group (TPG) |       |              |     |        |        |       |                                   |       |              |     |        |        |       |
|---|-------|--------------|-----|--------|--------|-------|-----------------------------------|-------|--------------|-----|--------|--------|-------|
| TPG 5: Urban Minor Arterial or Collector      |       |              |     |        |        |       | TPG 6: North Rural Minor Arterial |       |              |     |        |        |       |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                               | Date  | Hour (start) | DOW | Volume | % AADT | AADT  |
| 18  | 9/5   | 4:00 PM      | Fri | 874    | 13.35% | 6,545 | 2                                 | 8/20  | 4:00 PM      | Wed | 370    | 18.35% | 2,016 |
| 20  | 1/11  | 4:00 PM      | Fri | 783    | 10.61% | 7,381 | 3                                 | 10/12 | 3:00 PM      | Sun | 775    | 14.23% | 5,447 |
| 379   | 5/28  | 4:00 PM      | Wed | 170    | 11.81% | 1,439 | 27                                | 11/22 | 11:00 AM     | Sat | 532    | 19.78% | 2,689 |
| 380   | 6/6   | 5:00 PM      | Fri | 1,168  | 12.43% | 9,399 | 48                                | 10/20 | 4:00 PM      | Mon | 1,043  | 22.62% | 4,610 |
| 381   | 11/20 | 4:00 PM      | Thu | 85     | 15.86% | 536   | 51                                | 7/23  | 5:00 PM      | Wed | 437    | 13.68% | 3,195 |
| 382   | 1/28  | 9:00 AM      | Mon | 555    | 31.14% | 1,782 | 328                               | 2/4   | 3:00 PM      | Mon | 924    | 18.69% | 4,944 |

| 2008 Peak Hour by Traffic Pattern Group (TPG) |       |              |     |        |        |       |                              |      |              |     |        |        |       |
|---|-------|--------------|-----|--------|--------|-------|------------------------------|------|--------------|-----|--------|--------|-------|
| TPG 7: Central Rural Minor Arterial           |       |              |     |        |        |       | TPG 8: North Rural Collector |      |              |     |        |        |       |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                          | Date | Hour (start) | DOW | Volume | % AADT | AADT  |
| 15  | 10/18 | 1:00 PM      | Sat | 794    | 14.27% | 5,563 | 5                            | 6/1  | 1:00 PM      | Sun | 239    | 18.01% | 1,327 |
| 367   | 8/23  | 10:00 AM     | Sat | 723    | 12.26% | 5,895 | 29                           | 9/1  | 11:00 AM     | Mon | 156    | 13.40% | 1,164 |
| 390   | 8/20  | 4:00 PM      | Wed | 743    | 11.86% | 6,266 | 383                          | 8/29 | 4:00 PM      | Fri | 547    | 12.95% | 4,223 |
| 391   | 10/31 | 4:00 PM      | Fri | 999    | 12.23% | 8,170 | 384                          | 8/16 | 11:00 AM     | Sat | 117    | 20.03% | 584   |
|   |       |              |     |        |        |       | 385                          | 10/3 | 5:00 PM      | Fri | 229    | 12.42% | 1,844 |

| 2008 Peak Hour by Traffic Pattern Group (TPG) |       |              |     |        |        |       |                              |      |              |     |        |        |       |
|---|-------|--------------|-----|--------|--------|-------|------------------------------|------|--------------|-----|--------|--------|-------|
| TPG 9: Central Rural Collector                |       |              |     |        |        |       | TPG 10: Special Recreational |      |              |     |        |        |       |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                          | Date | Hour (start) | DOW | Volume | % AADT | AADT  |
| 362   | 10/28 | 4:00 PM      | Tue | 678    | 11.44% | 5,927 | 306                          | 7/5  | 11:00 AM     | Sat | 945    | 16.34% | 5,784 |
| 364   | 6/20  | 5:00 PM      | Fri | 636    | 12.25% | 5,192 |                              |      |              |     |        |        |       |
| 386   | 5/7   | 1:00 AM      | Wed | 531    | 23.38% | 2,271 |                              |      |              |     |        |        |       |
| 387   | 8/22  | 5:00 PM      | Fri | 437    | 13.81% | 3,164 |                              |      |              |     |        |        |       |
| 388   | 5/22  | 5:00 PM      | Thu | 424    | 12.62% | 3,359 |                              |      |              |     |        |        |       |
| 389   | 5/27  | 4:00 PM      | Tue | 282    | 13.07% | 2,158 |                              |      |              |     |        |        |       |

## 2008 30th Highest Hour by Traffic Pattern Group (TPG)

| 2008 30th Highest Hour by Traffic Pattern Group |       |              |     |        |        |         |                         |       |              |     |        |        |        |
|---|-------|--------------|-----|--------|--------|---------|-------------------------|-------|--------------|-----|--------|--------|--------|
| TPG 1: Urban Interstate                         |       |              |     |        |        |         | TPG 2: Rural Interstate |       |              |     |        |        |        |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT    | ATR                     | Date  | Hour (start) | DOW | Volume | % AADT | AADT   |
| 208   | 11/6  | 4:00 PM      | Thu | 5,829  | 9.04%  | 64,510  | 216                     | 8/17  | 3:00 PM      | Sun | 3,232  | 12.01% | 26,915 |
| 210   | 10/31 | 4:00 PM      | Fri | 10,126 | 8.76%  | 115,528 | 370                     | 5/8   | 4:00 PM      | Thu | 3,029  | 9.31%  | 32,519 |
| 376   | 9/19  | 4:00 PM      | Fri | 5,881  | 9.53%  | 61,733  | 371                     | 3/23  | 5:00 PM      | Sun | 2,689  | 14.40% | 18,680 |
| 377   | 2/14  | 5:00 PM      | Thu | 5,640  | 10.34% | 54,530  | 372                     | 11/29 | 3:00 PM      | Sat | 2,717  | 10.24% | 26,543 |
| 394   | 8/28  | 5:00 PM      | Thu | 5,337  | 9.68%  | 55,136  | 374                     | 8/8   | 3:00 PM      | Fri | 3,692  | 11.45% | 32,253 |
|   |       |              |     |        |        |         | 392                     | 11/26 | 1:00 PM      | Wed | 2,611  | 11.33% | 23,035 |
|   |       |              |     |        |        |         | 393                     | 11/22 | 2:00 PM      | Sat | 3,263  | 10.69% | 30,513 |

| 2008 30th Highest Hour by Traffic Pattern Group |       |              |     |        |        |        |                                 |       |              |     |        |        |        |
|---|-------|--------------|-----|--------|--------|--------|---------------------------------|-------|--------------|-----|--------|--------|--------|
| TPG 3: Urban Principal Arterial                 |       |              |     |        |        |        | TPG 4: Rural Principal Arterial |       |              |     |        |        |        |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT   | ATR                             | Date  | Hour (start) | DOW | Volume | % AADT | AADT   |
| 8   | 4/8   | 9:00 AM      | Tue | 1,846  | 11.35% | 16,271 | 4                               | 4/16  | 11:00 AM     | Wed | 402    | 14.67% | 2,741  |
| 203   | 4/16  | 4:00 PM      | Wed | 2,074  | 10.07% | 20,589 | 19                              | 4/8   | 5:00 PM      | Tue | 590    | 10.56% | 5,586  |
| 206   | 10/2  | 7:00 AM      | Thu | 3,852  | 13.59% | 28,350 | 323                             | 8/14  | 4:00 PM      | Thu | 409    | 10.89% | 3,757  |
| 301   | 7/9   | 4:00 PM      | Wed | 1,595  | 10.81% | 14,758 | 326                             | 5/1   | 3:00 PM      | Thu | 1,059  | 11.04% | 9,593  |
| 330   | 2/14  | 5:00 PM      | Thu | 1,101  | 9.68%  | 11,371 | 334                             | 10/11 | 11:00 AM     | Sat | 1,579  | 9.09%  | 17,380 |
| 375   | 11/13 | 5:00 PM      | Thu | 2,321  | 9.89%  | 23,479 | 349                             | 4/11  | 4:00 PM      | Fri | 3,353  | 9.03%  | 37,130 |
|   |       |              |     |        |        |        | 360                             | 12/18 | 4:00 PM      | Thu | 274    | 10.96% | 2,499  |
|   |       |              |     |        |        |        | 363                             | 7/25  | 3:00 PM      | Fri | 522    | 10.84% | 4,817  |
|   |       |              |     |        |        |        | 378                             | 8/29  | 3:00 PM      | Fri | 1,091  | 10.44% | 10,446 |
|   |       |              |     |        |        |        | 395                             | 12/17 | 5:00 PM      | Wed | 1,080  | 9.85%  | 10,970 |

### 2008 30th Highest Hour by TPG (Continued)

| 2008 30th Highest Hour by Traffic Pattern Group |      |              |     |        |        |       |                                   |      |              |     |        |        |       |
|---|------|--------------|-----|--------|--------|-------|-----------------------------------|------|--------------|-----|--------|--------|-------|
| TPG 5: Urban Minor Arterial or Collector        |      |              |     |        |        |       | TPG 6: North Rural Minor Arterial |      |              |     |        |        |       |
| ATR   | Date | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                               | Date | Hour (start) | DOW | Volume | % AADT | AADT  |
| 18  | 6/27 | 3:00 PM      | Fri | 732    | 11.18% | 6,545 | 2                                 | 9/19 | 5:00 PM      | Fri | 234    | 11.61% | 2,016 |
| 20  | 4/17 | 4:00 PM      | Thu | 730    | 9.89%  | 7,381 | 3                                 | 9/5  | 4:00 PM      | Fri | 603    | 11.07% | 5,447 |
| 379   | 2/25 | 4:00 PM      | Mon | 152    | 10.56% | 1,439 | 27                                | 7/27 | 2:00 PM      | Sun | 361    | 13.43% | 2,689 |
| 380   | 5/30 | 5:00 PM      | Fri | 1,045  | 11.12% | 9,399 | 48                                | 8/15 | 12:00 PM     | Fri | 539    | 11.69% | 4,610 |
| 381   | 1/18 | 3:00 PM      | Fri | 65     | 12.13% | 536   | 51                                | 4/16 | 5:00 PM      | Wed | 345    | 10.80% | 3,195 |
| 382   | 4/24 | 3:00 PM      | Thu | 198    | 11.11% | 1,782 | 328                               | 7/23 | 5:00 PM      | Wed | 548    | 11.08% | 4,944 |

| 2008 30th Highest Hour by Traffic Pattern Group |      |              |     |        |        |       |                              |       |              |     |        |        |       |
|---|------|--------------|-----|--------|--------|-------|------------------------------|-------|--------------|-----|--------|--------|-------|
| TPG 7: Central Rural Minor Arterial             |      |              |     |        |        |       | TPG 8: North Rural Collector |       |              |     |        |        |       |
| ATR   | Date | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                          | Date  | Hour (start) | DOW | Volume | % AADT | AADT  |
| 15  | 3/28 | 3:00 PM      | Fri | 622    | 11.18% | 5,563 | 5                            | 10/2  | 4:00 PM      | Thu | 170    | 12.81% | 1,327 |
| 367   | 8/23 | 12:00 PM     | Sat | 618    | 10.48% | 5,895 | 29                           | 9/19  | 4:00 PM      | Fri | 131    | 11.25% | 1,164 |
| 390   | 3/6  | 4:00 PM      | Thu | 657    | 10.49% | 6,266 | 383                          | 5/30  | 4:00 PM      | Fri | 480    | 11.37% | 4,223 |
| 391   | 6/20 | 5:00 PM      | Fri | 863    | 10.56% | 8,170 | 384                          | 8/21  | 4:00 PM      | Thu | 83     | 14.21% | 584   |
|   |      |              |     |        |        |       | 385                          | 10/24 | 5:00 PM      | Fri | 203    | 11.01% | 1,844 |

| 2008 30th Highest Hour by Traffic Pattern Group |       |              |     |        |        |       |                              |      |              |     |        |        |       |
|---|-------|--------------|-----|--------|--------|-------|------------------------------|------|--------------|-----|--------|--------|-------|
| TPG 9: Central Rural Collector                  |       |              |     |        |        |       | TPG 10: Special Recreational |      |              |     |        |        |       |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                          | Date | Hour (start) | DOW | Volume | % AADT | AADT  |
| 362   | 4/30  | 5:00 PM      | Wed | 601    | 10.14% | 5,927 | 306                          | 7/3  | 3:00 PM      | Thu | 746    | 12.90% | 5,784 |
| 364   | 6/17  | 5:00 PM      | Tue | 564    | 10.86% | 5,192 |                              |      |              |     |        |        |       |
| 386   | 8/13  | 5:00 PM      | Wed | 285    | 12.55% | 2,271 |                              |      |              |     |        |        |       |
| 387   | 4/10  | 4:00 PM      | Thu | 338    | 10.68% | 3,164 |                              |      |              |     |        |        |       |
| 388   | 12/19 | 4:00 PM      | Fri | 373    | 11.10% | 3,359 |                              |      |              |     |        |        |       |
| 389   | 4/18  | 3:00 PM      | Fri | 239    | 11.08% | 2,158 |                              |      |              |     |        |        |       |

## 2008 50th Highest Hour by Traffic Pattern Group (TPG)

| 2008 50th Highest Hour by Traffic Pattern Group |       |              |     |        |        |         |                         |       |              |     |        |        |        |
|---|-------|--------------|-----|--------|--------|---------|-------------------------|-------|--------------|-----|--------|--------|--------|
| TPG 1: Urban Interstate                         |       |              |     |        |        |         | TPG 2: Rural Interstate |       |              |     |        |        |        |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT    | ATR                     | Date  | Hour (start) | DOW | Volume | % AADT | AADT   |
| 208   | 10/14 | 5:00 PM      | Tue | 5,734  | 8.89%  | 64,510  | 216                     | 4/7   | 2:00 PM      | Mon | 3,105  | 11.54% | 26,915 |
| 210   | 4/14  | 4:00 PM      | Mon | 10,012 | 8.67%  | 115,528 | 370                     | 11/19 | 2:00 PM      | Wed | 2,973  | 9.14%  | 32,519 |
| 376   | 7/18  | 3:00 PM      | Fri | 5,787  | 9.37%  | 61,733  | 371                     | 12/27 | 3:00 PM      | Sat | 2,599  | 13.91% | 18,680 |
| 377   | 2/1   | 5:00 PM      | Fri | 5,520  | 10.12% | 54,530  | 372                     | 11/29 | 2:00 PM      | Sat | 2,628  | 9.90%  | 26,543 |
| 394   | 9/19  | 4:00 PM      | Fri | 5,206  | 9.44%  | 55,136  | 374                     | 7/6   | 3:00 PM      | Sun | 3,597  | 11.15% | 32,253 |
|   |       |              |     |        |        |         | 392                     | 8/22  | 2:00 PM      | Fri | 2,438  | 10.58% | 23,035 |
|   |       |              |     |        |        |         | 393                     | 12/26 | 1:00 PM      | Fri | 3,124  | 10.24% | 30,513 |

| 2008 50th Highest Hour by Traffic Pattern Group |      |              |     |        |        |        |                                 |       |              |     |        |        |        |
|---|------|--------------|-----|--------|--------|--------|---------------------------------|-------|--------------|-----|--------|--------|--------|
| TPG 3: Urban Principal Arterial                 |      |              |     |        |        |        | TPG 4: Rural Principal Arterial |       |              |     |        |        |        |
| ATR   | Date | Hour (start) | DOW | Volume | % AADT | AADT   | ATR                             | Date  | Hour (start) | DOW | Volume | % AADT | AADT   |
| 8   | 11/5 | 7:00 AM      | Wed | 1,830  | 11.25% | 16,271 | 4                               | 4/16  | 12:00 PM     | Wed | 363    | 13.24% | 2,741  |
| 203   | 3/13 | 4:00 PM      | Thu | 2,034  | 9.88%  | 20,589 | 19                              | 8/12  | 4:00 PM      | Tue | 571    | 10.22% | 5,586  |
| 206   | 4/22 | 7:00 AM      | Tue | 3,805  | 13.42% | 28,350 | 323                             | 11/19 | 1:00 PM      | Wed | 396    | 10.54% | 3,757  |
| 301   | 5/8  | 4:00 PM      | Thu | 1,561  | 10.58% | 14,758 | 326                             | 5/16  | 4:00 PM      | Fri | 1,037  | 10.81% | 9,593  |
| 330   | 4/17 | 5:00 PM      | Thu | 1,082  | 9.52%  | 11,371 | 334                             | 4/11  | 4:00 PM      | Fri | 1,549  | 8.91%  | 17,380 |
| 375   | 6/26 | 4:00 PM      | Thu | 2,245  | 9.56%  | 23,479 | 349                             | 1/25  | 4:00 PM      | Fri | 3,313  | 8.92%  | 37,130 |
|   |      |              |     |        |        |        | 360                             | 7/15  | 4:00 PM      | Tue | 262    | 10.48% | 2,499  |
|   |      |              |     |        |        |        | 363                             | 8/29  | 2:00 PM      | Fri | 500    | 10.38% | 4,817  |
|   |      |              |     |        |        |        | 378                             | 10/9  | 4:00 PM      | Thu | 1,061  | 10.16% | 10,446 |
|   |      |              |     |        |        |        | 395                             | 5/22  | 4:00 PM      | Thu | 1,063  | 9.69%  | 10,970 |



### 2008 50th Highest Hour by TPG (Continued)

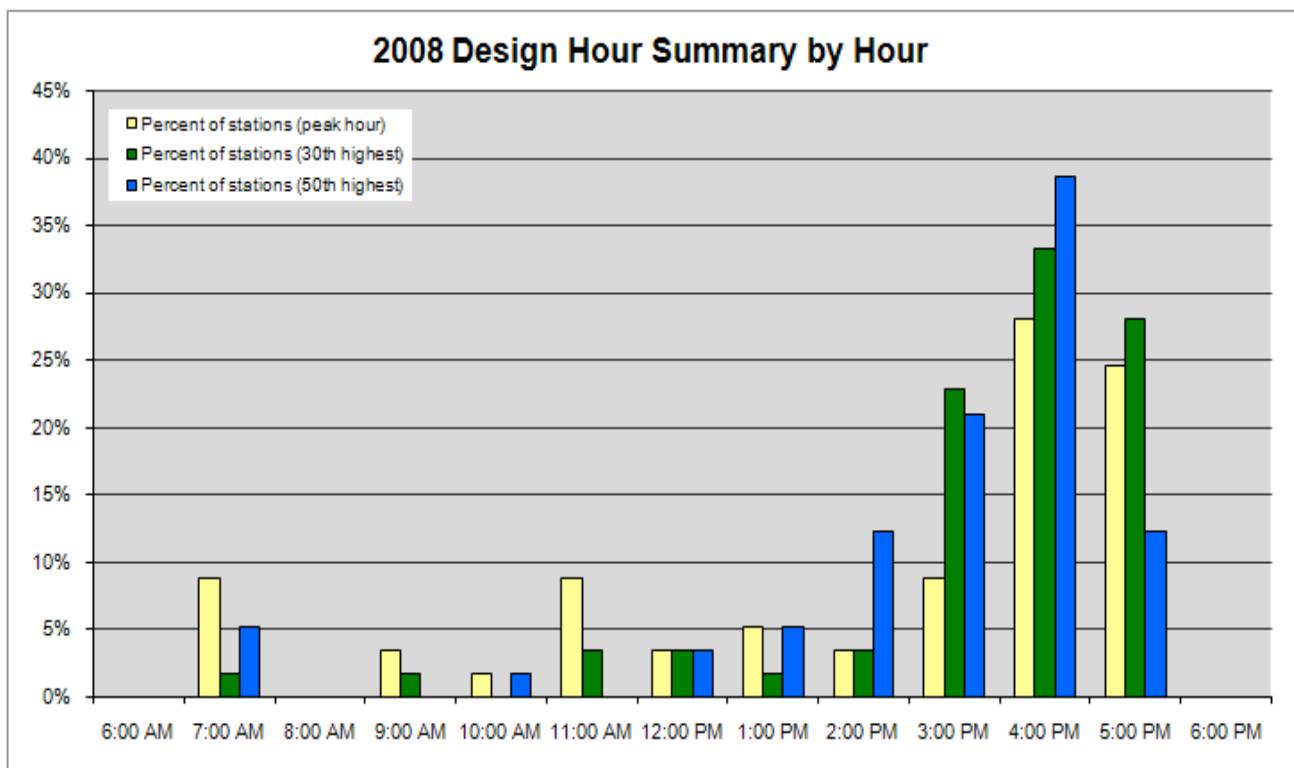
| 2008 50th Highest Hour by Traffic Pattern Group |       |              |     |        |        |       |                                   |      |              |     |        |        |       |
|---|-------|--------------|-----|--------|--------|-------|-----------------------------------|------|--------------|-----|--------|--------|-------|
| TPG 5: Urban Minor Arterial or Collector        |       |              |     |        |        |       | TPG 6: North Rural Minor Arterial |      |              |     |        |        |       |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                               | Date | Hour (start) | DOW | Volume | % AADT | AADT  |
| 18  | 4/4   | 4:00 PM      | Fri | 709    | 10.83% | 6,545 | 2                                 | 5/30 | 4:00 PM      | Fri | 224    | 11.11% | 2,016 |
| 20  | 11/14 | 4:00 PM      | Fri | 721    | 9.77%  | 7,381 | 3                                 | 4/11 | 3:00 PM      | Fri | 579    | 10.63% | 5,447 |
| 379   | 5/2   | 5:00 PM      | Fri | 149    | 10.35% | 1,439 | 27                                | 8/1  | 1:00 PM      | Fri | 341    | 12.68% | 2,689 |
| 380   | 3/28  | 3:00 PM      | Fri | 1,013  | 10.78% | 9,399 | 48                                | 8/14 | 4:00 PM      | Thu | 516    | 11.19% | 4,610 |
| 381   | 11/1  | 10:00 AM     | Sat | 60     | 11.19% | 536   | 51                                | 8/27 | 7:00 AM      | Wed | 337    | 10.55% | 3,195 |
| 382   | 11/3  | 3:00 PM      | Mon | 193    | 10.83% | 1,782 | 328                               | 8/14 | 3:00 PM      | Thu | 526    | 10.64% | 4,944 |

| 2008 50th Highest Hour by Traffic Pattern Group |       |              |     |        |        |       |                              |      |              |     |        |        |       |
|---|-------|--------------|-----|--------|--------|-------|------------------------------|------|--------------|-----|--------|--------|-------|
| TPG 7: Central Rural Minor Arterial             |       |              |     |        |        |       | TPG 8: North Rural Collector |      |              |     |        |        |       |
| ATR   | Date  | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                          | Date | Hour (start) | DOW | Volume | % AADT | AADT  |
| 15  | 11/3  | 3:00 PM      | Mon | 588    | 10.57% | 5,563 | 5                            | 9/5  | 5:00 PM      | Fri | 160    | 12.06% | 1,327 |
| 367   | 10/3  | 4:00 PM      | Fri | 593    | 10.06% | 5,895 | 29                           | 7/18 | 2:00 PM      | Fri | 127    | 10.91% | 1,164 |
| 390   | 10/8  | 4:00 PM      | Wed | 643    | 10.26% | 6,266 | 383                          | 7/28 | 4:00 PM      | Mon | 464    | 10.99% | 4,223 |
| 391   | 11/14 | 3:00 PM      | Fri | 834    | 10.21% | 8,170 | 384                          | 7/6  | 12:00 PM     | Sun | 80     | 13.70% | 584   |
|   |       |              |     |        |        |       | 385                          | 9/12 | 4:00 PM      | Fri | 197    | 10.68% | 1,844 |

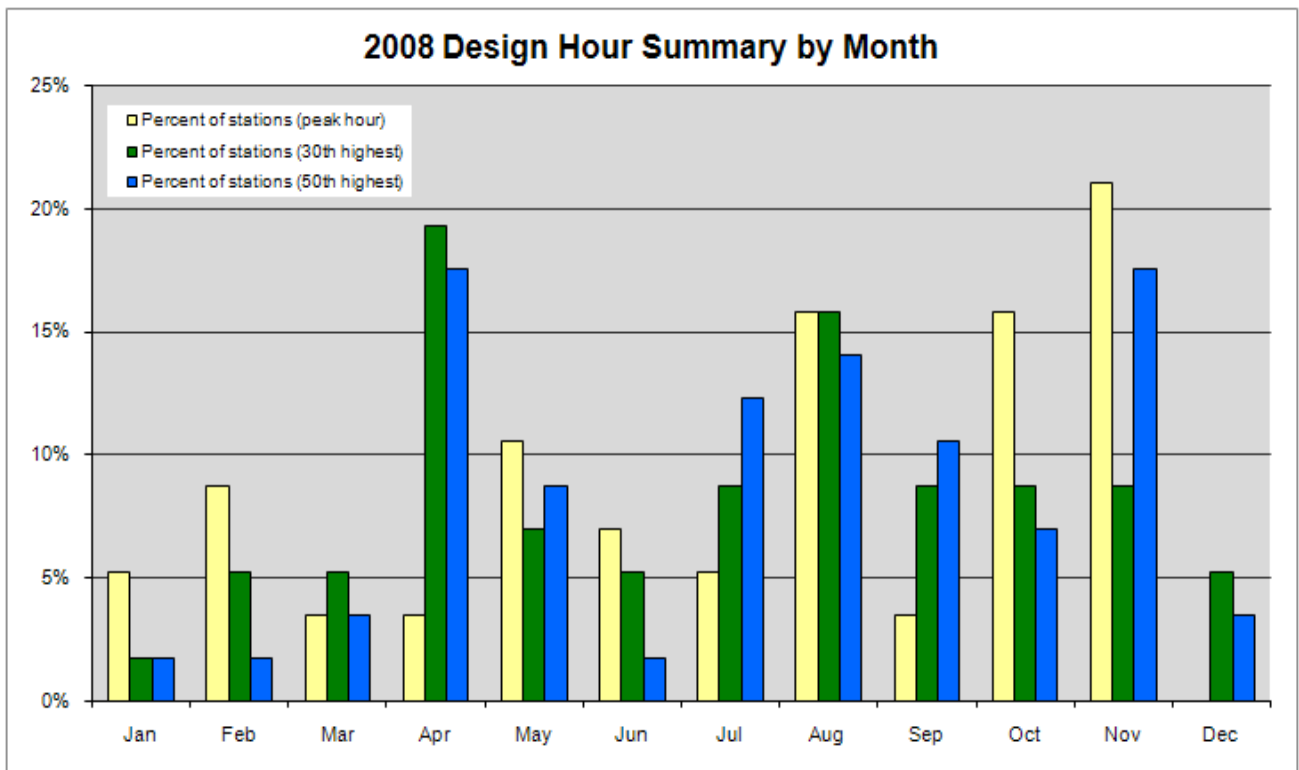
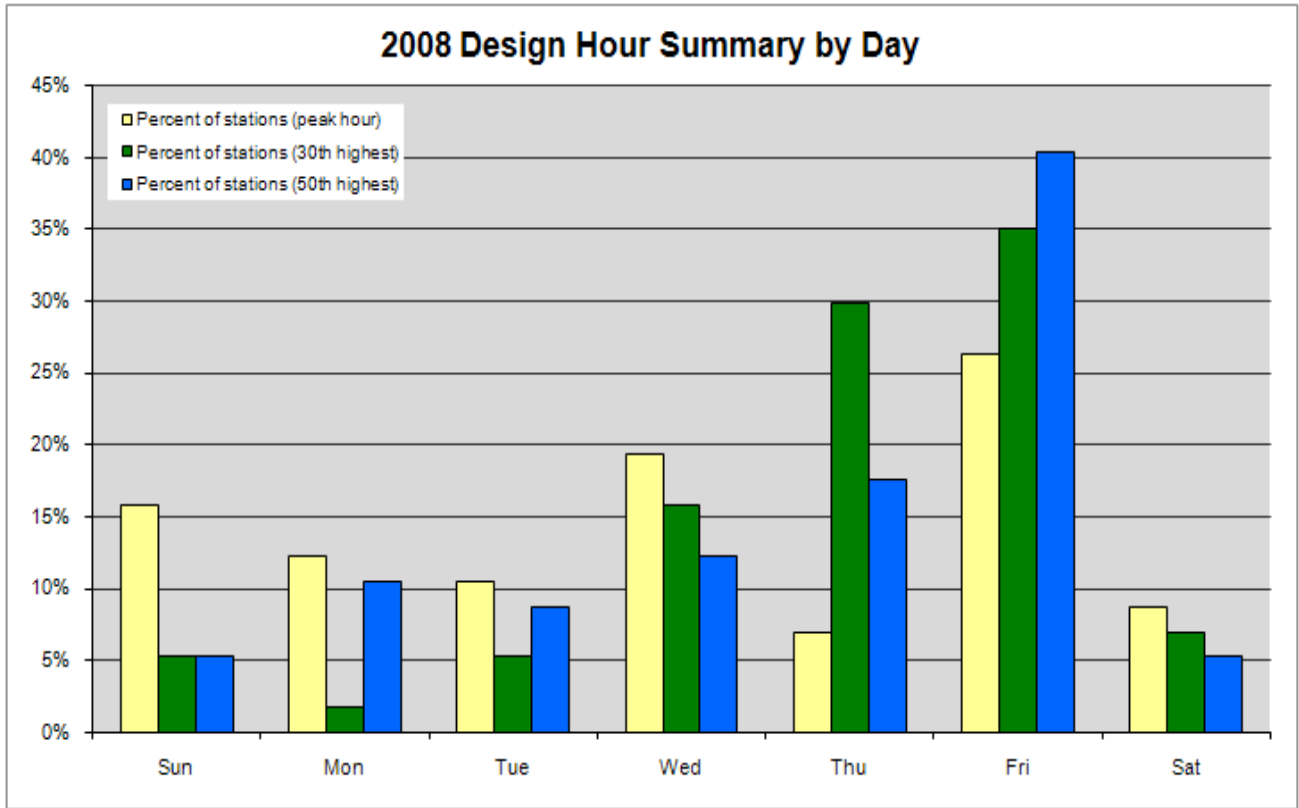
| 2008 50th Highest Hour by Traffic Pattern Group |      |              |     |        |        |       |                              |      |              |     |        |        |       |
|---|------|--------------|-----|--------|--------|-------|------------------------------|------|--------------|-----|--------|--------|-------|
| TPG 9: Central Rural Collector                  |      |              |     |        |        |       | TPG 10: Special Recreational |      |              |     |        |        |       |
| ATR   | Date | Hour (start) | DOW | Volume | % AADT | AADT  | ATR                          | Date | Hour (start) | DOW | Volume | % AADT | AADT  |
| 362   | 4/15 | 4:00 PM      | Tue | 589    | 9.94%  | 5,927 | 306                          | 8/31 | 2:00 PM      | Sun | 720    | 12.45% | 5,784 |
| 364   | 9/29 | 4:00 PM      | Mon | 553    | 10.65% | 5,192 |                              |      |              |     |        |        |       |
| 386   | 9/18 | 3:00 PM      | Thu | 270    | 11.89% | 2,271 |                              |      |              |     |        |        |       |
| 387   | 9/26 | 5:00 PM      | Fri | 330    | 10.43% | 3,164 |                              |      |              |     |        |        |       |
| 388   | 7/31 | 5:00 PM      | Thu | 363    | 10.81% | 3,359 |                              |      |              |     |        |        |       |
| 389   | 11/7 | 3:00 PM      | Fri | 233    | 10.80% | 2,158 |                              |      |              |     |        |        |       |

## 2008 Design Hour Summaries: Peak, 30th and 50th Highest Hour

Design Hour Volume (DHV) is the hourly traffic volume used in the design of highways. The DHV is usually represented by the 30th highest hourly volume of the future year chosen for design. The following three graphs show the peak, 30th, and 50th highest hour summary by hour, day, and month.



### 2008 Design Hour Summaries: Peak, 30th and 50th Highest Hour



## Five Year Summary of Annual Average Daily Traffic (AADT) from ATRs

This chart shows the ATR station numbers and their Annual Average Daily Traffic (AADT) for the past five years, 2004 through 2008. The percent change is also given for 2007 to 2008 and 2004 to 2008, showing where traffic has increased or decreased.

*\*Indicates there is no data available.*

| ATR# | Annual Average Daily Traffic (AADT) |         |         |         |         | Percent Change |           |
|------|-------------------------------------|---------|---------|---------|---------|----------------|-----------|
|      | 2004                                | 2005    | 2006    | 2007    | 2008    | 2007-2008      | 2004-2008 |
| 2    | 2,153                               | 2,120   | 2,058   | 2,098   | 2,016   | -4.1%          | -6.8%     |
| 3    | 5,868                               | 5,709   | 5,738   | 5,728   | 5,448   | -5.1%          | -7.7%     |
| 4    | 2,990                               | 2,889   | 2,834   | 2,855   | 2,741   | -4.2%          | -9.1%     |
| 5    | 1,502                               | 1,433   | 1,441   | 1,400   | 1,327   | -5.5%          | -13.2%    |
| 8    | 17,531                              | 15,733  | 15,912  | 16,282  | 16,270  | -0.1%          | -7.8%     |
| 15   | 5,808                               | 5,990   | 5,982   | 5,832   | 5,564   | -4.8%          | -4.4%     |
| 18   | 6,434                               | 6,598   | 7,015   | 6,644   | 6,545   | -1.5%          | 1.7%      |
| 19   | 6,389                               | 6,321   | 5,982   | 5,821   | 5,587   | -4.2%          | -14.4%    |
| 20   | 7,939                               | 7,769   | 7,801   | 7,552   | 7,381   | -2.3%          | -7.6%     |
| 27   | 2,708                               | 2,737   | 2,773   | 2,799   | 2,688   | -4.1%          | -0.7%     |
| 29   | 1,104                               | 1,111   | 1,173   | 1,156   | 1,163   | 0.6%           | 5.1%      |
| 48   | 4,413                               | 4,411   | 4,547   | 4,547   | 4,610   | 1.4%           | 4.3%      |
| 51   | 4,007                               | 3,882   | 3,650   | 3,388   | 3,195   | -6.0%          | -25.4%    |
| 203  | 19,829                              | 21,406  | 20,589  | 20,491  | 20,589  | 0.5%           | 3.7%      |
| 206  | 27,067                              | 27,393  | 27,977  | 29,004  | 28,350  | -2.3%          | 4.5%      |
| 207  | 21,000                              | 20,905  | 20,577  | 21,038  | 21,402  | 1.7%           | 1.9%      |
| 208  | 66,016                              | 65,863  | 65,773  | 65,294  | 64,510  | -1.2%          | -2.3%     |
| 210  | 114,311                             | 115,600 | 116,841 | 117,292 | 115,527 | -1.5%          | 1.1%      |
| 216  | 27,771                              | 28,006  | 28,187  | 27,395  | 26,915  | -1.8%          | -3.2%     |
| 301  | 16,401                              | 15,857  | 15,439  | 15,045  | 14,757  | -2.0%          | -11.1%    |
| 306  | 6,146                               | 6,134   | 6,155   | 5,991   | 5,784   | -3.6%          | -6.3%     |
| 323  | 3,667                               | 3,572   | 3,651   | 3,788   | 3,757   | -0.8%          | 2.4%      |
| 326  | 10,165                              | 10,201  | 10,114  | 10,027  | 9,594   | -4.5%          | -6.0%     |
| 328  | 5,763                               | 5,784   | 5,070   | 5,138   | 4,944   | -3.9%          | -16.6%    |
| 330  | 11,818                              | 11,392  | 11,471  | 11,487  | 11,371  | -1.0%          | -3.9%     |
| 334  | 18,712                              | 19,764  | 18,933  | 18,125  | 17,379  | -4.3%          | -7.7%     |
| 349  | 37,775                              | 38,372  | 38,480  | 38,380  | 37,130  | -3.4%          | -1.7%     |

## Five Year Summary of AADT from ATRs (Continued)

\*Indicates there is no data available.

| ATR# | Annual Average Daily Traffic (AADT) |        |        |        |        | Percent Change |           |
|------|-------------------------------------|--------|--------|--------|--------|----------------|-----------|
|      | 2004                                | 2005   | 2006   | 2007   | 2008   | 2007-2008      | 2004-2008 |
| 360  | 2,763                               | 2,698  | 2,658  | 2,580  | 2,500  | -3.2%          | -10.5%    |
| 362  | 5,439                               | 5,699  | 5,932  | 6,019  | 5,927  | -1.6%          | 8.2%      |
| 363  | 5,039                               | 5,102  | 5,058  | 5,037  | 4,817  | -4.6%          | -4.6%     |
| 364  | 5,198                               | 5,310  | 5,352  | 5,327  | 5,192  | -2.6%          | -0.1%     |
| 367  | 6,462                               | 6,473  | 6,241  | 6,087  | 5,894  | -3.3%          | -9.6%     |
| 370  | 31,388                              | 31,111 | 31,099 | 31,865 | 32,519 | 2.0%           | 3.5%      |
| 371  | 18,982                              | 19,299 | 19,401 | 19,092 | 18,680 | -2.2%          | -1.6%     |
| 372  | 25,527                              | 26,111 | 26,696 | 27,031 | 26,543 | -1.8%          | 3.8%      |
| 374  | 33,404                              | 33,870 | 33,927 | 33,181 | 32,253 | -2.9%          | -3.6%     |
| 375  | 24,945                              | 25,013 | 25,170 | 24,070 | 23,479 | -2.5%          | -6.2%     |
| 376  | 58,645                              | 59,882 | 61,170 | 61,431 | 61,733 | 0.5%           | 5.0%      |
| 377  | 53,595                              | 54,307 | 53,219 | 54,592 | 54,531 | -0.1%          | 1.7%      |
| 378  | 11,025                              | 10,989 | 10,922 | 10,660 | 10,446 | -2.0%          | -5.5%     |
| 379  | 1,422                               | 1,474  | 1,493  | 1,515  | 1,439  | -5.3%          | 1.2%      |
| 380  | 9,634                               | 9,563  | 9,451  | 9,171  | 9,399  | 2.4%           | -2.5%     |
| 381  | 634                                 | 701    | 671    | 612    | 537    | -14.0%         | -18.1%    |
| 382  | 2,115                               | 1,963  | 1,927  | 1,870  | 1,782  | -4.9%          | -18.7%    |
| 383  | 4,366                               | 4,209  | 4,181  | 3,926  | 4,223  | 7.0%           | -3.4%     |
| 384  | 647                                 | 622    | 630    | 606    | 584    | -3.8%          | -10.8%    |
| 385  | 2,021                               | 2,159  | 2,081  | 1,929  | 1,844  | -4.6%          | -9.6%     |
| 386  | 2,123                               | 2,056  | 2,122  | 2,235  | 2,271  | 1.6%           | 6.5%      |
| 387  | 3,469                               | 3,379  | 3,384  | 3,301  | 3,164  | -4.3%          | -9.6%     |
| 388  | 3,569                               | 3,862  | 3,961  | 3,822  | 3,358  | -13.8%         | -6.3%     |
| 389  | 2,190                               | 2,160  | 2,239  | 2,182  | 2,158  | -1.1%          | -1.5%     |
| 390  | 6,862                               | 6,673  | 6,608  | 6,307  | 6,267  | -0.6%          | -9.5%     |
| 391  | 8,498                               | 8,607  | 8,733  | 8,549  | 8,170  | -4.6%          | -4.0%     |
| 392  | 23,180                              | 23,522 | 23,746 | 23,867 | 23,035 | -3.6%          | -0.6%     |
| 393  | 30,739                              | 30,354 | 30,910 | 30,875 | 30,513 | -1.2%          | -0.7%     |
| 394  | 50,618                              | 50,879 | 52,363 | 52,003 | 55,137 | 5.7%           | 8.2%      |
| 395  | *                                   | *      | *      | 11,550 | 10,971 | -5.3%          | *         |

\* 395 Percent change is taken from 2007 & 2008 data only, 2007 was first full year of data.

## Statewide Traffic Trends: Annual and Multi-Year Change By Traffic Pattern Group

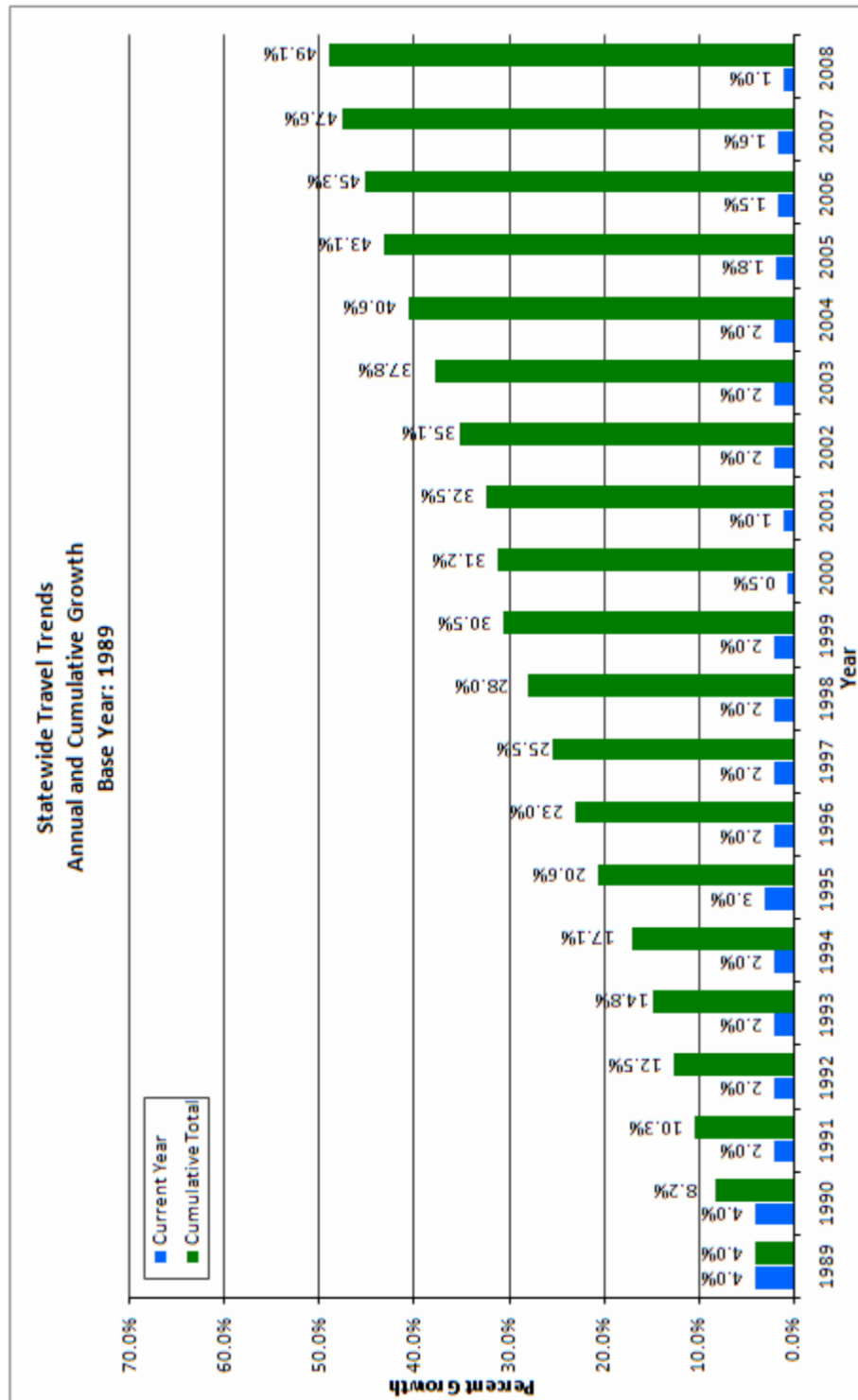
This table shows percent change for the traffic pattern groups at one-year intervals starting with 2003/2004 up to 2007/2008. An overall percent change for the traffic pattern groups is also shown on this table.

| Percent Change Per Year, 2003 - 2008         |             |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| TRAFFIC PATTERN GROUPS                       | 2003-04     | 2004-05     | 2005-06     | 2006-07     | 2007-08     | 2003-08     |
| TPG 1<br>Urban Interstate                    | 3.2%        | 3.2%        | 2.9%        | 3.0%        | 2.4%        | 14.7%       |
| TPG 2<br>Rural Interstate                    | 3.3%        | 3.2%        | 3.0%        | 3.0%        | 2.4%        | 14.9%       |
| TPG 3<br>Urban Principal Arterial            | 1.4%        | 1.1%        | 0.7%        | 1.1%        | 0.2%        | 4.5%        |
| TPG 4<br>Rural Principal Arterial            | 1.7%        | 1.6%        | 1.2%        | 1.3%        | 0.8%        | 6.6%        |
| TPG 5<br>Urban Minor Arterials or Collectors | 1.4%        | 1.1%        | 0.7%        | 1.1%        | 0.2%        | 4.5%        |
| TPG 6<br>North Rural Minor Arterials         | 1.7%        | 1.6%        | 1.2%        | 1.3%        | 0.8%        | 6.6%        |
| TPG 7<br>Central Rural Minor Arterials       | 1.7%        | 1.6%        | 1.2%        | 1.3%        | 0.8%        | 6.6%        |
| TPG 8<br>North Rural Collectors              | 1.7%        | 1.6%        | 1.2%        | 1.3%        | 0.8%        | 6.6%        |
| TPG 9<br>Central Rural Collectors            | 1.7%        | 1.6%        | 1.2%        | 1.3%        | 0.8%        | 6.6%        |
| TPG 10<br>Special Recreational               | 1.7%        | 1.6%        | 1.2%        | 1.3%        | 0.8%        | 6.6%        |
| <b>Statewide</b>                             | <b>2.0%</b> | <b>1.8%</b> | <b>1.5%</b> | <b>1.6%</b> | <b>1.0%</b> | <b>7.8%</b> |



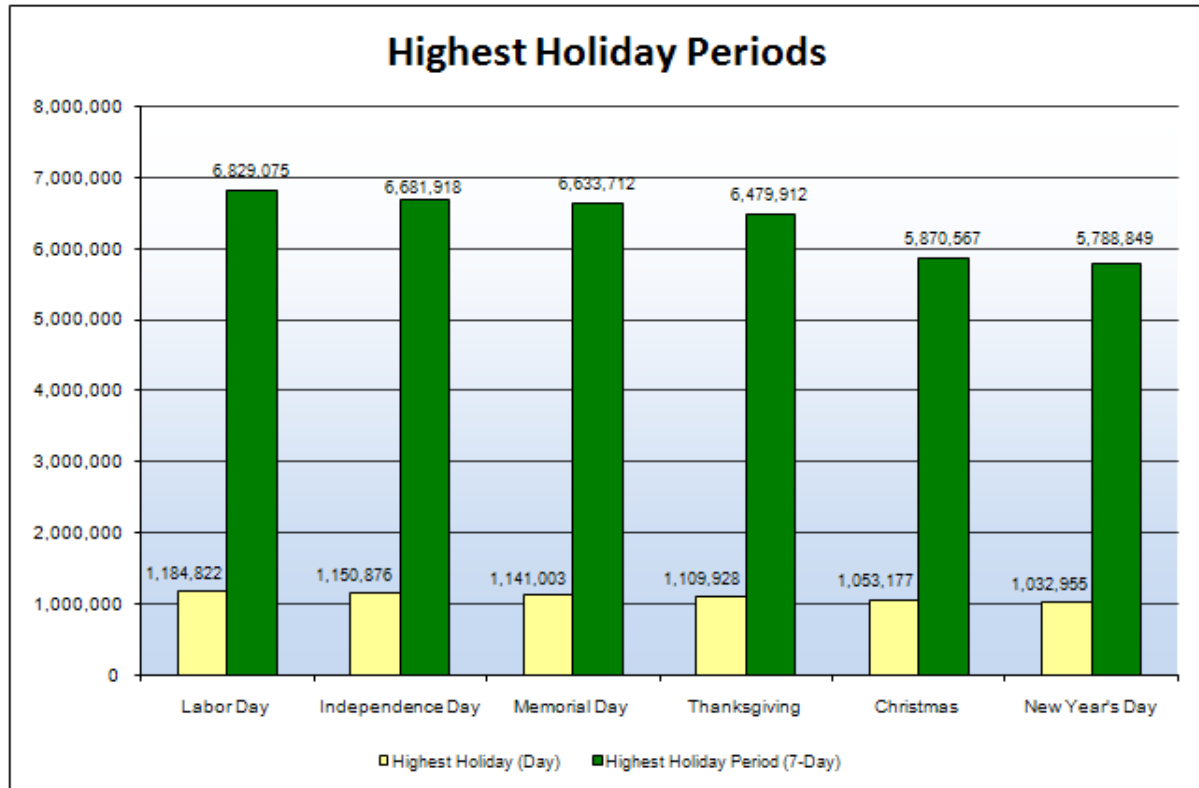
### Statewide Traffic Trends

This chart shows yearly changes from 1989 to 2008, and a 20-year cumulative trend for the same period.



## Heaviest Holiday Travel Periods: 2008

The 57 ATRs were used to calculate the holidays having the highest seven-day periods of traffic. The highest seven-day holiday periods and the highest day within the seven-day holiday period (total traffic at all ATR stations) are shown on the chart below:



The chart indicates that Labor Day had the highest seven-day holiday period in 2008 with a total volume of 6,829,075. Independence Day ranked second (6,681,918) followed by Memorial Day (6,633,712) and Thanksgiving (6,479,912). Christmas and New Year's Day ranked fifth (5,870,567) and sixth (5,788,849) respectively.

The highest day during a seven-day holiday period in 2008 was the Friday before Labor Day (August 29, 2008), which had a volume of 1,184,822. The second highest day was the Thursday before Independence Day (July 3, 2008), which had a volume of 1,150,876. The Friday before Memorial Day (May 23, 2008), ranked third (1,141,003), while the Wednesday before Thanksgiving Day (November 26, 2008), ranked fourth (1,109,928). The Tuesday before Christmas (December 23, 2008) ranked fifth (1,053,177), while the Friday before New Year's Day (December 28, 2008) ranked sixth (1,032,955).

## Heaviest Holiday Travel Period Comparisons: 2007-2008

| Highest Holiday (Day) |              |  |                     |              |
|-----------------------|--------------|--|---------------------|--------------|
| 2007                  |              |  | 2008                |              |
| Holiday               | Total Volume |  | Holiday             | Total Volume |
| 1. Labor Day          | 1,198,519    |  | 1. Labor Day        | 1,184,822    |
| 2. Independence Day   | 1,185,366    |  | 2. Independence Day | 1,150,876    |
| 3. Thanksgiving       | 1,176,760    |  | 3. Memorial Day     | 1,141,003    |
| 4. Memorial Day       | 1,140,784    |  | 4. Thanksgiving     | 1,109,928    |
| 5. Christmas          | 1,110,131    |  | 5. Christmas        | 1,053,177    |
| 6. New Year's Day     | 1,106,487    |  | 6. New Year's Day   | 1,032,955    |

| Highest Holiday Period (7-Day) |              |  |                     |              |
|--------------------------------|--------------|--|---------------------|--------------|
| 2007                           |              |  | 2008                |              |
| Holiday                        | Total Volume |  | Holiday             | Total Volume |
| 1. Independence Day            | 6,820,227    |  | 1. Labor Day        | 6,829,075    |
| 2. Labor Day                   | 6,796,086    |  | 2. Independence Day | 6,681,918    |
| 3. Memorial Day                | 6,657,789    |  | 3. Memorial Day     | 6,633,712    |
| 4. Thanksgiving                | 6,523,583    |  | 4. Thanksgiving     | 6,479,912    |
| 5. New Year's Day              | 6,386,081    |  | 5. Christmas        | 5,870,567    |
| 6. Christmas                   | 5,962,334    |  | 6. New Year's Day   | 5,788,849    |

## Factoring Process: Traffic Adjustment Factors

### Traffic Adjustment Factors

Traffic Adjustment Factors are numbers that are used to create traffic statistics representing an average day. Factors are generated by applying statistical methods and programs to raw traffic counts. The different procedures used to factor counts depend on the following outcomes:

### 24-Hour Total Traffic and Truck Traffic Estimation

Count data less than 24-hours (short term counts) must first be expanded to a 24-hour total, which is accomplished through the use of hourly percentage tables. Separate tables are utilized for total vehicles and truck data application.

### AADT and ADTT Estimation

A 24-hour count is processed to an Annual Average Daily Traffic (AADT) and Average Daily Truck Traffic (ADTT) through the application of a “day of week by month” factor. Separate tables are utilized for total vehicle and truck data application.

### Axle Correction

Axle volume count data is collected by counting the number of axles striking a single pneumatic tube stretched across a section of highway and dividing by two. This type of data must be corrected to compensate for vehicles containing more than two axles (specifically truck data) to obtain a representative number of vehicles actually traveling that road section. This representation is obtained through the application of an axle correction factor.

### Equivalent Single Axle Load Adjustment (ESAL)

ESAL adjustment factors are applied to the ADTT for each type of truck classification, to determine the loading effect these truck classes have on the pavement. Two separate calculations are performed: one for rigid type pavement (concrete) and one for flexible type pavement (bituminous). The AASHTO Mechanistic Empirical Pavement Design Guide has incorporated improved methods of determining loading effects of traffic. In the future, these new methods may supercede the use of ESAL factors.

### Growth Factor

If the count to be analyzed was taken earlier than the current year, a regional growth trend is applied to project the older count data to a representative current year estimate. Regional growth trends are established based on Functional Class Group (FCG).

### Design Hour Volume Factor, DHV(K)

The K-factor represents the percentage of AADT during the design hour. It is calculated by dividing the peak hour volume by the AADT. A 24-hour count is required to calculate the K-factor. If this condition is not met (in the case of manual counts), a default value is applied. The default value is calculated from the 57 ATR stations using the 30th highest hour and is established based on Traffic Pattern Group (TPG).

**Table 350**  
**Hourly Percentages Compiled for Total Vehicles**

The following table shows hourly percentages of total vehicles sorted by Traffic Pattern Group (TPG) for the year 2008. Factors from this table are applied to raw traffic counts of less than 24 hours, which may include volume counts (axle and loop), automatic vehicle classification (AVC), or manual classification counts. Hourly percentages from this table are applied to the known hour periods of the raw count, converting it to a 24-hour total.

The factors were developed using the Department's Traffic Information System (TIS), a PC-based computer application. Raw count data from 2,000 raw AVC counts, collected statewide and averaged over the last five years, was assigned to the respective TPG and a summary was produced showing the hourly percentage tables by direction (applied to divided roadways).

| Hourly Percentages: Total Vehicles |         |         |         |       |         |         |         |
|------------------------------------|---------|---------|---------|-------|---------|---------|---------|
| TPG 1                              |         |         |         | TPG 2 |         |         |         |
| HOUR                               | DIR 1   | DIR 2   | TOTAL   | HOUR  | DIR 1   | DIR 2   | TOTAL   |
| 1                                  | 1.21%   | 1.35%   | 1.22%   | 1     | 1.54%   | 1.85%   | 1.80%   |
| 2                                  | 0.93%   | 0.98%   | 0.89%   | 2     | 1.26%   | 1.55%   | 1.50%   |
| 3                                  | 0.85%   | 0.89%   | 0.81%   | 3     | 1.20%   | 1.48%   | 1.38%   |
| 4                                  | 0.90%   | 0.93%   | 0.84%   | 4     | 1.21%   | 1.49%   | 1.39%   |
| 5                                  | 1.25%   | 1.17%   | 1.12%   | 5     | 1.43%   | 1.72%   | 1.59%   |
| 6                                  | 2.52%   | 2.07%   | 2.24%   | 6     | 2.34%   | 2.37%   | 2.28%   |
| 7                                  | 5.66%   | 4.03%   | 4.82%   | 7     | 4.06%   | 3.75%   | 3.61%   |
| 8                                  | 7.79%   | 5.27%   | 6.56%   | 8     | 5.49%   | 4.61%   | 4.68%   |
| 9                                  | 6.66%   | 5.03%   | 5.87%   | 9     | 5.26%   | 4.77%   | 4.83%   |
| 10                                 | 5.47%   | 4.81%   | 5.16%   | 10    | 5.40%   | 4.91%   | 5.12%   |
| 11                                 | 5.34%   | 4.91%   | 5.11%   | 11    | 5.75%   | 5.17%   | 5.46%   |
| 12                                 | 5.38%   | 5.15%   | 5.29%   | 12    | 5.97%   | 5.29%   | 5.66%   |
| 13                                 | 5.43%   | 5.41%   | 5.46%   | 13    | 5.92%   | 5.39%   | 5.71%   |
| 14                                 | 5.44%   | 5.56%   | 5.52%   | 14    | 5.97%   | 5.70%   | 5.88%   |
| 15                                 | 5.88%   | 6.25%   | 6.04%   | 15    | 6.25%   | 6.20%   | 6.27%   |
| 16                                 | 6.50%   | 7.47%   | 6.95%   | 16    | 6.62%   | 6.95%   | 6.78%   |
| 17                                 | 6.53%   | 8.38%   | 7.44%   | 17    | 6.78%   | 7.59%   | 7.05%   |
| 18                                 | 6.31%   | 7.92%   | 7.19%   | 18    | 6.24%   | 6.89%   | 6.50%   |
| 19                                 | 5.24%   | 5.66%   | 5.55%   | 19    | 5.09%   | 5.32%   | 5.31%   |
| 20                                 | 4.06%   | 4.46%   | 4.37%   | 20    | 4.22%   | 4.29%   | 4.40%   |
| 21                                 | 3.39%   | 3.94%   | 3.72%   | 21    | 3.72%   | 3.84%   | 3.92%   |
| 22                                 | 2.97%   | 3.53%   | 3.29%   | 22    | 3.27%   | 3.47%   | 3.50%   |
| 23                                 | 2.44%   | 2.74%   | 2.59%   | 23    | 2.78%   | 2.94%   | 2.95%   |
| 24                                 | 1.85%   | 2.10%   | 1.95%   | 24    | 2.24%   | 2.46%   | 2.42%   |
| TOTAL                              | 100.00% | 100.00% | 100.00% | TOTAL | 100.00% | 100.00% | 100.00% |

**Table 350**  
**Hourly Percentages Compiled for Total Vehicles (Continued)**

| Hourly Percentages: Total Vehicles |                |                |                |              |                |                |                |
|------------------------------------|----------------|----------------|----------------|--------------|----------------|----------------|----------------|
| TPG 3                              |                |                |                | TPG 4        |                |                |                |
| HOUR                               | DIR 1          | DIR 2          | TOTAL          | HOUR         | DIR 1          | DIR 2          | TOTAL          |
| 1                                  | 0.73%          | 1.02%          | 0.82%          | 1            | 0.89%          | 1.02%          | 0.80%          |
| 2                                  | 0.47%          | 0.60%          | 0.50%          | 2            | 0.61%          | 0.71%          | 0.54%          |
| 3                                  | 0.42%          | 0.48%          | 0.42%          | 3            | 0.54%          | 0.62%          | 0.48%          |
| 4                                  | 0.49%          | 0.47%          | 0.45%          | 4            | 0.65%          | 0.64%          | 0.56%          |
| 5                                  | 0.95%          | 0.69%          | 0.76%          | 5            | 1.17%          | 0.93%          | 1.00%          |
| 6                                  | 2.66%          | 1.62%          | 2.05%          | 6            | 3.08%          | 2.03%          | 2.48%          |
| 7                                  | 6.23%          | 3.63%          | 4.73%          | 7            | 5.85%          | 3.81%          | 4.78%          |
| 8                                  | 8.52%          | 5.38%          | 6.70%          | 8            | 7.26%          | 5.10%          | 6.13%          |
| 9                                  | 7.09%          | 5.06%          | 5.99%          | 9            | 6.24%          | 5.00%          | 5.63%          |
| 10                                 | 5.48%          | 4.64%          | 5.14%          | 10           | 5.48%          | 4.85%          | 5.29%          |
| 11                                 | 5.20%          | 4.70%          | 5.11%          | 11           | 5.33%          | 4.88%          | 5.39%          |
| 12                                 | 5.33%          | 5.08%          | 5.43%          | 12           | 5.45%          | 5.19%          | 5.59%          |
| 13                                 | 5.55%          | 5.39%          | 5.72%          | 13           | 5.64%          | 5.46%          | 5.82%          |
| 14                                 | 5.58%          | 5.57%          | 5.75%          | 14           | 5.86%          | 5.79%          | 6.00%          |
| 15                                 | 6.07%          | 6.40%          | 6.32%          | 15           | 6.31%          | 6.56%          | 6.59%          |
| 16                                 | 6.70%          | 8.18%          | 7.33%          | 16           | 6.95%          | 8.23%          | 7.57%          |
| 17                                 | 6.91%          | 9.24%          | 7.83%          | 17           | 7.16%          | 9.06%          | 7.92%          |
| 18                                 | 6.70%          | 9.08%          | 7.67%          | 18           | 6.73%          | 8.62%          | 7.42%          |
| 19                                 | 5.34%          | 6.33%          | 5.93%          | 19           | 5.22%          | 5.86%          | 5.59%          |
| 20                                 | 4.05%          | 4.74%          | 4.58%          | 20           | 3.93%          | 4.45%          | 4.30%          |
| 21                                 | 3.28%          | 3.98%          | 3.80%          | 21           | 3.22%          | 3.83%          | 3.62%          |
| 22                                 | 2.76%          | 3.45%          | 3.14%          | 22           | 2.80%          | 3.27%          | 2.96%          |
| 23                                 | 2.13%          | 2.44%          | 2.26%          | 23           | 2.16%          | 2.39%          | 2.11%          |
| 24                                 | 1.41%          | 1.84%          | 1.56%          | 24           | 1.46%          | 1.71%          | 1.44%          |
| <b>TOTAL</b>                       | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> | <b>TOTAL</b> | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> |



**Table 350**  
**Hourly Percentages Compiled for Total Vehicles (Continued)**

| Hourly Percentages: Total Vehicles |         |         |         |       |         |         |         |
|------------------------------------|---------|---------|---------|-------|---------|---------|---------|
| TPG 5                              |         |         |         | TPG 6 |         |         |         |
| HOUR                               | DIR 1   | DIR 2   | TOTAL   | HOUR  | DIR 1   | DIR 2   | TOTAL   |
| 1                                  | 0.75%   | 0.96%   | 0.72%   | 1     | 0.99%   | 0.81%   | 0.79%   |
| 2                                  | 0.46%   | 0.57%   | 0.41%   | 2     | 0.64%   | 0.51%   | 0.52%   |
| 3                                  | 0.40%   | 0.46%   | 0.33%   | 3     | 0.48%   | 0.46%   | 0.46%   |
| 4                                  | 0.47%   | 0.45%   | 0.35%   | 4     | 0.58%   | 0.62%   | 0.52%   |
| 5                                  | 0.88%   | 0.65%   | 0.65%   | 5     | 0.89%   | 0.89%   | 0.95%   |
| 6                                  | 2.44%   | 1.60%   | 1.86%   | 6     | 2.08%   | 1.86%   | 2.24%   |
| 7                                  | 5.52%   | 3.69%   | 4.44%   | 7     | 4.16%   | 3.99%   | 4.28%   |
| 8                                  | 7.80%   | 5.29%   | 6.47%   | 8     | 5.90%   | 5.90%   | 5.74%   |
| 9                                  | 6.77%   | 5.07%   | 5.83%   | 9     | 5.80%   | 5.10%   | 5.52%   |
| 10                                 | 5.32%   | 4.64%   | 5.00%   | 10    | 5.54%   | 4.81%   | 5.40%   |
| 11                                 | 5.07%   | 4.68%   | 5.01%   | 11    | 5.23%   | 5.01%   | 5.55%   |
| 12                                 | 5.38%   | 5.11%   | 5.45%   | 12    | 5.63%   | 5.47%   | 5.85%   |
| 13                                 | 5.75%   | 5.58%   | 5.86%   | 13    | 5.82%   | 5.93%   | 6.06%   |
| 14                                 | 5.72%   | 5.57%   | 5.76%   | 14    | 6.02%   | 6.11%   | 6.19%   |
| 15                                 | 6.08%   | 6.30%   | 6.36%   | 15    | 6.47%   | 6.92%   | 6.82%   |
| 16                                 | 6.90%   | 8.15%   | 7.55%   | 16    | 7.14%   | 8.39%   | 7.80%   |
| 17                                 | 7.18%   | 9.29%   | 8.14%   | 17    | 7.28%   | 8.61%   | 8.00%   |
| 18                                 | 6.93%   | 9.13%   | 7.98%   | 18    | 7.05%   | 8.43%   | 7.28%   |
| 19                                 | 5.51%   | 6.46%   | 6.17%   | 19    | 6.11%   | 5.90%   | 5.62%   |
| 20                                 | 4.45%   | 4.81%   | 4.88%   | 20    | 4.81%   | 4.39%   | 4.42%   |
| 21                                 | 3.67%   | 4.04%   | 4.04%   | 21    | 3.87%   | 3.65%   | 3.66%   |
| 22                                 | 2.99%   | 3.36%   | 3.15%   | 22    | 3.03%   | 2.81%   | 2.88%   |
| 23                                 | 2.16%   | 2.39%   | 2.16%   | 23    | 2.67%   | 2.03%   | 2.07%   |
| 24                                 | 1.40%   | 1.74%   | 1.42%   | 24    | 1.80%   | 1.38%   | 1.39%   |
| TOTAL                              | 100.00% | 100.00% | 100.00% | TOTAL | 100.00% | 100.00% | 100.00% |

**Table 350**  
**Hourly Percentages Compiled for Total Vehicles (Continued)**

| Hourly Percentages: Total Vehicles |         |         |         |       |         |         |         |
|------------------------------------|---------|---------|---------|-------|---------|---------|---------|
| TPG 7                              |         |         |         | TPG 8 |         |         |         |
| HOUR                               | DIR 1   | DIR 2   | TOTAL   | HOUR  | DIR 1   | DIR 2   | TOTAL   |
| 1                                  | 0.88%   | 0.94%   | 0.76%   | 1     | 0.56%   | 0.81%   | 0.72%   |
| 2                                  | 0.56%   | 0.67%   | 0.46%   | 2     | 0.35%   | 0.54%   | 0.43%   |
| 3                                  | 0.51%   | 0.57%   | 0.39%   | 3     | 0.34%   | 0.35%   | 0.35%   |
| 4                                  | 0.55%   | 0.65%   | 0.46%   | 4     | 0.43%   | 0.33%   | 0.38%   |
| 5                                  | 1.00%   | 0.98%   | 0.90%   | 5     | 0.74%   | 0.72%   | 0.71%   |
| 6                                  | 2.62%   | 1.99%   | 2.50%   | 6     | 2.15%   | 1.64%   | 1.97%   |
| 7                                  | 5.65%   | 3.85%   | 5.06%   | 7     | 5.19%   | 3.57%   | 4.38%   |
| 8                                  | 7.23%   | 4.96%   | 6.35%   | 8     | 7.10%   | 5.79%   | 6.17%   |
| 9                                  | 6.16%   | 4.54%   | 5.49%   | 9     | 5.68%   | 5.26%   | 5.63%   |
| 10                                 | 5.46%   | 4.49%   | 5.08%   | 10    | 5.25%   | 4.84%   | 5.13%   |
| 11                                 | 5.33%   | 4.66%   | 5.15%   | 11    | 5.38%   | 5.32%   | 5.24%   |
| 12                                 | 5.54%   | 5.10%   | 5.40%   | 12    | 5.95%   | 5.64%   | 5.59%   |
| 13                                 | 5.90%   | 5.64%   | 5.78%   | 13    | 6.44%   | 5.98%   | 5.93%   |
| 14                                 | 5.82%   | 5.66%   | 5.74%   | 14    | 6.29%   | 6.01%   | 5.97%   |
| 15                                 | 6.35%   | 6.73%   | 6.46%   | 15    | 6.29%   | 6.53%   | 6.59%   |
| 16                                 | 7.14%   | 8.69%   | 7.68%   | 16    | 6.94%   | 8.23%   | 7.76%   |
| 17                                 | 7.35%   | 9.70%   | 8.13%   | 17    | 7.39%   | 8.28%   | 8.14%   |
| 18                                 | 6.72%   | 8.97%   | 7.65%   | 18    | 7.04%   | 8.16%   | 7.69%   |
| 19                                 | 5.24%   | 5.94%   | 5.75%   | 19    | 5.64%   | 6.23%   | 6.02%   |
| 20                                 | 4.10%   | 4.57%   | 4.46%   | 20    | 4.75%   | 4.78%   | 4.77%   |
| 21                                 | 3.54%   | 3.78%   | 3.76%   | 21    | 3.94%   | 4.05%   | 3.93%   |
| 22                                 | 2.84%   | 3.00%   | 3.02%   | 22    | 2.96%   | 3.35%   | 3.06%   |
| 23                                 | 2.07%   | 2.24%   | 2.13%   | 23    | 1.89%   | 2.23%   | 2.08%   |
| 24                                 | 1.47%   | 1.67%   | 1.43%   | 24    | 1.29%   | 1.37%   | 1.36%   |
| TOTAL                              | 100.00% | 100.00% | 100.00% | TOTAL | 100.00% | 100.00% | 100.00% |

**Table 350**  
**Hourly Percentages Compiled for Total Vehicles (Continued)**

| Hourly Percentages: Total Vehicles |         |         |         |        |         |         |         |
|------------------------------------|---------|---------|---------|--------|---------|---------|---------|
| TPG 9                              |         |         |         | TPG 10 |         |         |         |
| HOUR                               | DIR 1   | DIR 2   | TOTAL   | HOUR   | DIR 1   | DIR 2   | TOTAL   |
| 1                                  | 0.89%   | 1.27%   | 0.79%   | 1      | 0.08%   | 0.07%   | 0.80%   |
| 2                                  | 0.55%   | 0.76%   | 0.47%   | 2      | 0.02%   | 0.02%   | 0.49%   |
| 3                                  | 0.48%   | 0.62%   | 0.40%   | 3      | 0.02%   | 0.00%   | 0.34%   |
| 4                                  | 0.58%   | 0.63%   | 0.44%   | 4      | 0.03%   | 0.02%   | 0.34%   |
| 5                                  | 1.12%   | 0.94%   | 0.81%   | 5      | 0.00%   | 0.02%   | 0.59%   |
| 6                                  | 2.96%   | 2.03%   | 2.20%   | 6      | 0.56%   | 0.10%   | 1.45%   |
| 7                                  | 6.22%   | 4.09%   | 4.74%   | 7      | 1.87%   | 0.52%   | 3.02%   |
| 8                                  | 7.83%   | 5.34%   | 6.40%   | 8      | 2.40%   | 1.25%   | 4.79%   |
| 9                                  | 6.96%   | 5.09%   | 5.64%   | 9      | 3.02%   | 1.87%   | 5.03%   |
| 10                                 | 5.57%   | 4.60%   | 4.96%   | 10     | 4.45%   | 2.42%   | 5.14%   |
| 11                                 | 4.94%   | 4.50%   | 4.94%   | 11     | 6.66%   | 3.20%   | 5.46%   |
| 12                                 | 5.10%   | 4.72%   | 5.24%   | 12     | 8.31%   | 4.36%   | 6.00%   |
| 13                                 | 5.23%   | 5.39%   | 5.59%   | 13     | 11.24%  | 6.14%   | 6.33%   |
| 14                                 | 5.43%   | 5.53%   | 5.63%   | 14     | 8.63%   | 7.66%   | 6.41%   |
| 15                                 | 5.69%   | 6.46%   | 6.31%   | 15     | 7.76%   | 8.11%   | 6.84%   |
| 16                                 | 6.24%   | 7.65%   | 7.60%   | 16     | 6.50%   | 9.51%   | 7.84%   |
| 17                                 | 6.60%   | 8.37%   | 8.11%   | 17     | 5.50%   | 9.10%   | 8.49%   |
| 18                                 | 6.65%   | 8.03%   | 7.84%   | 18     | 7.60%   | 8.36%   | 8.11%   |
| 19                                 | 5.74%   | 6.21%   | 6.15%   | 19     | 9.74%   | 8.13%   | 6.32%   |
| 20                                 | 4.56%   | 4.66%   | 4.82%   | 20     | 9.02%   | 9.76%   | 5.22%   |
| 21                                 | 3.53%   | 3.97%   | 4.01%   | 21     | 4.52%   | 12.70%  | 4.20%   |
| 22                                 | 3.12%   | 3.66%   | 3.17%   | 22     | 1.45%   | 5.14%   | 3.12%   |
| 23                                 | 2.48%   | 3.10%   | 2.26%   | 23     | 0.47%   | 1.10%   | 2.19%   |
| 24                                 | 1.53%   | 2.37%   | 1.50%   | 24     | 0.16%   | 0.43%   | 1.47%   |
| TOTAL                              | 100.00% | 100.00% | 100.00% | TOTAL  | 100.00% | 100.00% | 100.00% |

**Table 360**  
**Hourly Percentages Compiled for Truck Traffic**

The following four tables and chart show hourly percentages of truck traffic sorted by Maintenance Functional Class (MFC). These tables are applied separately to raw truck data of less than 24-hours, including both Automatic Vehicle Classification (AVC) and manual counts. Manual classification counts are the primary source of data using these tables. The hourly percentages are calculated from these tables and applied to the sum of the known hour periods and in turn converted to a 24-hour truck total.

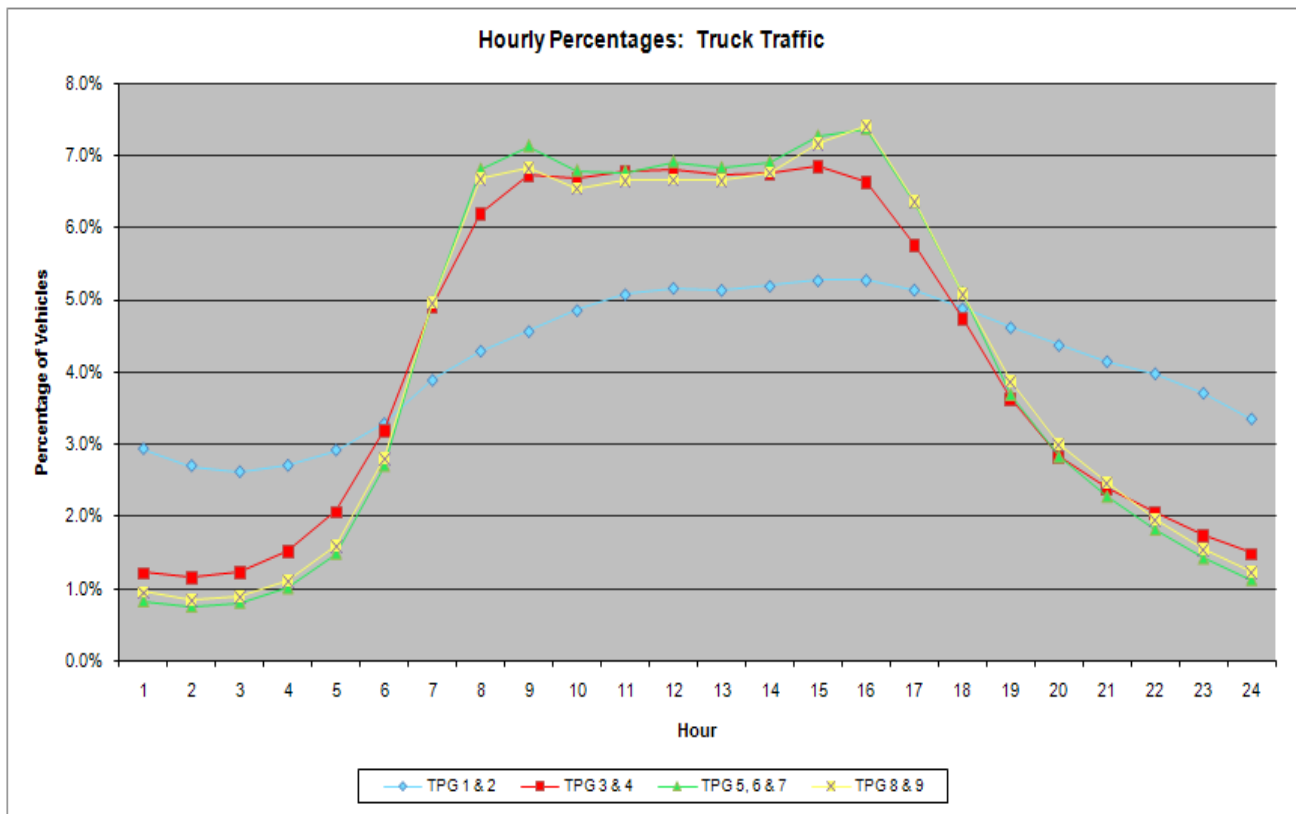
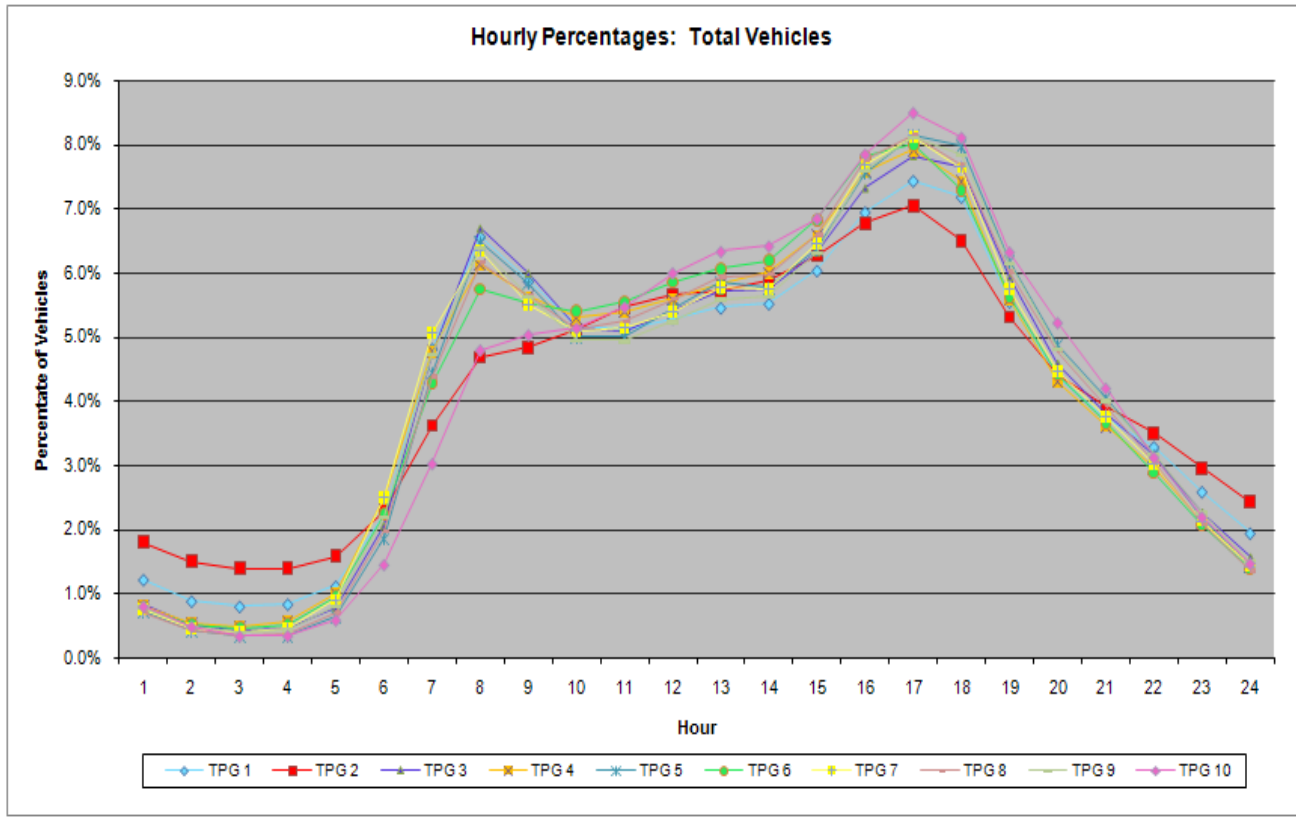
The factors were developed using 2,000 AVC counts, collected and verified over the last five years. The raw count data was assigned to the respective Traffic Pattern Group (TPG), the truck data was extracted by vehicle type, the Traffic Information System (TIS) generated a summary showing the hourly percentage table by direction (applied to divided roadways). Truck data is tabulated according to MFC. Hourly weekday truck distribution provides evidence that the hourly percentage changes by MFC provide a valid breakdown of groups. Therefore, a summary was produced converting the TPGs to comparable MFC groups to be consistent with the characteristics of the 2008 Hourly Percentages (Truck Traffic) tables.

| TPG 1 & 2                                       |                |                |                | TPG 3 & 4   |                |                |                |
|---|----------------|----------------|----------------|---|----------------|----------------|----------------|
| MAINTENANCE FUNCTIONAL CLASS A<br>(INTERSTATES) |                |                |                | MAINTENANCE FUNCTIONAL CLASS B<br>(PRINCIPAL ARTERIALS) |                |                |                |
| HOUR  | DIR 1          | DIR 2          | TOTAL          | HOUR  | DIR 1          | DIR 2          | TOTAL          |
| 1   | 2.78%          | 3.28%          | 2.94%          | 1   | 1.30%          | 1.56%          | 1.22%          |
| 2   | 2.49%          | 3.18%          | 2.70%          | 2   | 1.19%          | 1.47%          | 1.15%          |
| 3   | 2.43%          | 2.99%          | 2.62%          | 3   | 1.23%          | 1.56%          | 1.23%          |
| 4   | 2.45%          | 3.16%          | 2.70%          | 4   | 1.51%          | 1.80%          | 1.52%          |
| 5   | 2.68%          | 3.30%          | 2.92%          | 5   | 2.06%          | 2.34%          | 2.06%          |
| 6   | 2.96%          | 3.59%          | 3.28%          | 6   | 3.23%          | 3.35%          | 3.19%          |
| 7   | 3.60%          | 3.97%          | 3.89%          | 7   | 4.91%          | 4.79%          | 4.91%          |
| 8   | 4.04%          | 4.30%          | 4.29%          | 8   | 6.15%          | 5.59%          | 6.19%          |
| 9   | 4.38%          | 4.53%          | 4.56%          | 9   | 6.75%          | 6.18%          | 6.72%          |
| 10  | 4.89%          | 4.72%          | 4.85%          | 10  | 6.55%          | 6.24%          | 6.67%          |
| 11  | 5.20%          | 4.73%          | 5.07%          | 11  | 6.67%          | 6.35%          | 6.77%          |
| 12  | 5.48%          | 4.69%          | 5.16%          | 12  | 6.72%          | 6.41%          | 6.80%          |
| 13  | 5.35%          | 4.69%          | 5.13%          | 13  | 6.70%          | 6.52%          | 6.72%          |
| 14  | 5.41%          | 4.81%          | 5.19%          | 14  | 6.65%          | 6.60%          | 6.75%          |
| 15  | 5.57%          | 4.89%          | 5.27%          | 15  | 6.66%          | 6.69%          | 6.85%          |
| 16  | 5.61%          | 4.97%          | 5.27%          | 16  | 6.51%          | 6.40%          | 6.63%          |
| 17  | 5.56%          | 4.77%          | 5.14%          | 17  | 5.71%          | 5.82%          | 5.76%          |
| 18  | 5.13%          | 4.57%          | 4.88%          | 18  | 4.81%          | 4.78%          | 4.74%          |
| 19  | 4.81%          | 4.51%          | 4.61%          | 19  | 3.73%          | 3.77%          | 3.62%          |
| 20  | 4.53%          | 4.38%          | 4.37%          | 20  | 2.92%          | 3.03%          | 2.83%          |
| 21  | 4.15%          | 4.14%          | 4.14%          | 21  | 2.46%          | 2.62%          | 2.39%          |
| 22  | 3.84%          | 4.20%          | 3.98%          | 22  | 2.17%          | 2.31%          | 2.05%          |
| 23  | 3.54%          | 3.97%          | 3.70%          | 23  | 1.85%          | 2.02%          | 1.74%          |
| 24  | 3.15%          | 3.67%          | 3.35%          | 24  | 1.58%          | 1.78%          | 1.48%          |
| <b>TOTAL</b>                                    | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> | <b>TOTAL</b>  | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> |

**Table 360**  
**Hourly Percentages Compiled for Truck Traffic (Continued)**

| TPG 5, 6 & 7  |                |                |                | TPG 8 & 9   |                |                |                |
|---|----------------|----------------|----------------|---|----------------|----------------|----------------|
| MAINTENANCE FUNCTIONAL CLASS C<br>(MINOR ARTERIALS) |                |                |                | MAINTENANCE FUNCTIONAL CLASS D, E & F<br>(RURAL COLLECTORS) |                |                |                |
| HOUR  | DIR 1          | DIR 2          | TOTAL          | HOUR  | DIR 1          | DIR 2          | TOTAL          |
| 1   | 1.02%          | 1.40%          | 0.83%          | 1   | 1.16%          | 1.79%          | 0.95%          |
| 2   | 0.92%          | 1.26%          | 0.76%          | 2   | 1.01%          | 1.52%          | 0.83%          |
| 3   | 0.99%          | 1.34%          | 0.81%          | 3   | 1.03%          | 1.72%          | 0.88%          |
| 4   | 1.16%          | 1.64%          | 1.01%          | 4   | 1.27%          | 2.03%          | 1.10%          |
| 5   | 1.58%          | 1.95%          | 1.49%          | 5   | 1.85%          | 2.37%          | 1.59%          |
| 6   | 2.67%          | 2.90%          | 2.70%          | 6   | 2.85%          | 3.56%          | 2.80%          |
| 7   | 4.64%          | 4.44%          | 4.97%          | 7   | 5.15%          | 5.39%          | 4.96%          |
| 8   | 6.57%          | 5.81%          | 6.81%          | 8   | 6.06%          | 6.31%          | 6.68%          |
| 9   | 7.01%          | 6.20%          | 7.13%          | 9   | 6.34%          | 6.19%          | 6.82%          |
| 10  | 6.74%          | 6.24%          | 6.79%          | 10  | 6.66%          | 6.59%          | 6.55%          |
| 11  | 6.81%          | 6.30%          | 6.78%          | 11  | 6.53%          | 6.28%          | 6.65%          |
| 12  | 6.89%          | 6.32%          | 6.91%          | 12  | 6.60%          | 5.91%          | 6.67%          |
| 13  | 6.79%          | 6.43%          | 6.83%          | 13  | 6.91%          | 5.97%          | 6.66%          |
| 14  | 6.75%          | 6.58%          | 6.91%          | 14  | 6.74%          | 6.27%          | 6.76%          |
| 15  | 6.84%          | 6.83%          | 7.27%          | 15  | 6.81%          | 6.14%          | 7.17%          |
| 16  | 7.08%          | 6.80%          | 7.37%          | 16  | 6.47%          | 6.02%          | 7.41%          |
| 17  | 6.37%          | 6.23%          | 6.36%          | 17  | 5.93%          | 5.57%          | 6.36%          |
| 18  | 4.98%          | 5.60%          | 5.10%          | 18  | 5.14%          | 4.71%          | 5.08%          |
| 19  | 3.72%          | 4.01%          | 3.69%          | 19  | 4.09%          | 3.83%          | 3.87%          |
| 20  | 2.94%          | 3.25%          | 2.83%          | 20  | 3.21%          | 3.13%          | 3.00%          |
| 21  | 2.46%          | 2.63%          | 2.28%          | 21  | 2.67%          | 2.63%          | 2.47%          |
| 22  | 2.12%          | 2.22%          | 1.82%          | 22  | 2.23%          | 2.40%          | 1.96%          |
| 23  | 1.61%          | 1.96%          | 1.42%          | 23  | 1.80%          | 2.04%          | 1.55%          |
| 24  | 1.33%          | 1.69%          | 1.13%          | 24  | 1.48%          | 1.63%          | 1.23%          |
| <b>TOTAL</b>  | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> | <b>TOTAL</b>  | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> |

### Hourly Percentages Charts





**Table 355**  
**Average Day of Week by Month Factors Compiled for Total Vehicles**

The following 12 tables show average day of week factors by month compiled for total vehicles for the year 2008. Current year Automatic Traffic Recorder (ATR) traffic data is assembled and the data is placed in the respective TPG. Annual Average Daily Traffic (AADT) is tabulated individually for each of the 57 ATR stations. A factor is calculated for each day from each station and a list is tabulated by month and day of the week. This data is assembled by day and TPG for each station. The result is a group factor, which can be applied to a 24-hour raw traffic count taken during any day of the year to develop an AADT volume.

| January 2008 |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 1.130 | 1.289 | 1.102 | 1.167 | 1.142 | 1.264 | 1.151 | 1.231 | 1.155 | 1.288  |
| Tuesday      | 1.093 | 1.297 | 0.989 | 1.125 | 1.078 | 1.229 | 1.112 | 1.191 | 1.083 | 1.243  |
| Wednesday    | 1.060 | 1.316 | 0.987 | 1.120 | 1.072 | 1.205 | 1.076 | 1.196 | 1.080 | 1.330  |
| Thursday     | 1.030 | 1.257 | 0.961 | 1.075 | 1.055 | 1.166 | 1.054 | 1.176 | 1.061 | 1.224  |
| Friday       | 0.964 | 1.125 | 0.925 | 0.987 | 1.008 | 1.062 | 0.991 | 1.068 | 1.002 | 1.111  |
| Saturday     | 1.320 | 1.429 | 1.284 | 1.311 | 1.208 | 1.443 | 1.219 | 1.299 | 1.275 | 1.216  |
| Sunday       | 1.468 | 1.367 | 1.698 | 1.498 | 1.377 | 1.649 | 1.461 | 1.520 | 1.492 | 1.344  |
| DAY OF MONTH | 1.152 | 1.297 | 1.135 | 1.183 | 1.134 | 1.288 | 1.152 | 1.240 | 1.164 | 1.251  |

| February 2008 |       |       |       |       |       |       |       |       |       |        |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY           | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday        | 1.072 | 1.261 | 1.016 | 1.117 | 1.125 | 1.190 | 1.102 | 1.203 | 1.114 | 1.290  |
| Tuesday       | 1.072 | 1.349 | 0.982 | 1.118 | 1.089 | 1.183 | 1.095 | 1.169 | 1.082 | 1.235  |
| Wednesday     | 1.035 | 1.267 | 0.961 | 1.084 | 1.056 | 1.158 | 1.019 | 1.189 | 1.131 | 1.201  |
| Thursday      | 0.992 | 1.194 | 0.927 | 1.035 | 1.039 | 1.089 | 1.029 | 1.108 | 1.042 | 1.192  |
| Friday        | 0.946 | 1.094 | 0.899 | 0.952 | 1.010 | 1.005 | 0.975 | 1.052 | 1.029 | 0.910  |
| Saturday      | 1.238 | 1.384 | 1.224 | 1.227 | 1.171 | 1.312 | 1.187 | 1.252 | 1.239 | 1.158  |
| Sunday        | 1.349 | 1.324 | 1.543 | 1.491 | 1.348 | 1.523 | 1.389 | 1.501 | 1.488 | 1.476  |
| DAY OF MONTH  | 1.101 | 1.267 | 1.079 | 1.146 | 1.120 | 1.209 | 1.114 | 1.210 | 1.160 | 1.209  |

**Table 355**  
**Average Day of Week by Month Factors Compiled for Total Vehicles**  
**(Continued)**

| March 2008   |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 1.009 | 1.186 | 0.962 | 1.042 | 1.030 | 1.094 | 1.067 | 1.112 | 1.016 | 1.225  |
| Tuesday      | 1.006 | 1.192 | 0.943 | 1.029 | 1.020 | 1.095 | 1.058 | 1.101 | 0.988 | 1.166  |
| Wednesday    | 0.983 | 1.165 | 0.935 | 1.034 | 1.013 | 1.098 | 1.026 | 1.111 | 0.989 | 1.215  |
| Thursday     | 0.949 | 1.088 | 0.920 | 0.997 | 1.000 | 1.052 | 1.015 | 1.068 | 0.982 | 1.181  |
| Friday       | 0.927 | 0.978 | 0.898 | 0.935 | 0.951 | 0.967 | 0.953 | 0.998 | 0.942 | 1.084  |
| Saturday     | 1.182 | 1.225 | 1.195 | 1.162 | 1.093 | 1.249 | 1.133 | 1.176 | 1.150 | 1.167  |
| Sunday       | 1.198 | 1.120 | 1.544 | 1.294 | 1.200 | 1.379 | 1.253 | 1.287 | 1.299 | 1.054  |
| DAY OF MONTH | 1.036 | 1.136 | 1.057 | 1.070 | 1.044 | 1.133 | 1.072 | 1.122 | 1.052 | 1.156  |

| April 2008   |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 0.968 | 1.084 | 0.935 | 0.975 | 0.963 | 0.996 | 0.993 | 1.007 | 0.954 | 1.085  |
| Tuesday      | 0.955 | 1.110 | 0.903 | 0.973 | 0.941 | 0.998 | 0.961 | 0.992 | 0.918 | 1.047  |
| Wednesday    | 0.938 | 1.069 | 0.891 | 0.960 | 0.929 | 0.999 | 0.921 | 0.988 | 0.912 | 1.062  |
| Thursday     | 0.904 | 0.988 | 0.878 | 0.931 | 0.926 | 0.945 | 0.928 | 0.953 | 0.895 | 1.019  |
| Friday       | 0.881 | 0.859 | 0.865 | 0.859 | 0.886 | 0.864 | 0.869 | 0.883 | 0.858 | 0.947  |
| Saturday     | 1.124 | 1.094 | 1.150 | 1.062 | 0.998 | 1.074 | 1.013 | 1.023 | 1.036 | 1.000  |
| Sunday       | 1.127 | 1.009 | 1.340 | 1.141 | 1.081 | 1.132 | 1.136 | 1.096 | 1.173 | 1.231  |
| DAY OF MONTH | 0.985 | 1.031 | 0.995 | 0.986 | 0.961 | 1.001 | 0.974 | 0.992 | 0.964 | 1.056  |

| May 2008     |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 1.006 | 1.004 | 0.992 | 0.978 | 0.990 | 0.955 | 0.990 | 0.927 | 0.957 | 0.986  |
| Tuesday      | 0.948 | 1.046 | 0.884 | 0.945 | 0.910 | 0.929 | 0.927 | 0.901 | 0.888 | 0.938  |
| Wednesday    | 0.930 | 1.034 | 0.874 | 0.936 | 0.904 | 0.924 | 0.899 | 0.895 | 0.883 | 0.947  |
| Thursday     | 0.894 | 0.949 | 0.860 | 0.904 | 0.886 | 0.884 | 0.892 | 0.853 | 0.865 | 0.914  |
| Friday       | 0.879 | 0.830 | 0.847 | 0.835 | 0.855 | 0.801 | 0.820 | 0.799 | 0.831 | 0.848  |
| Saturday     | 1.109 | 1.023 | 1.128 | 1.009 | 0.962 | 0.995 | 0.973 | 0.897 | 1.008 | 0.854  |
| Sunday       | 1.123 | 0.962 | 1.336 | 1.085 | 1.068 | 1.046 | 1.097 | 0.947 | 1.119 | 0.545  |
| DAY OF MONTH | 0.984 | 0.978 | 0.989 | 0.956 | 0.939 | 0.933 | 0.943 | 0.888 | 0.936 | 0.862  |

**Table 355**  
**Average Day of Week by Month Factors Compiled for Total Vehicles**  
**(Continued)**

| June 2008    |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 0.935 | 0.955 | 0.919 | 0.941 | 0.919 | 0.911 | 0.982 | 0.907 | 0.917 | 0.908  |
| Tuesday      | 0.926 | 1.004 | 0.889 | 0.943 | 0.915 | 0.923 | 0.962 | 0.909 | 0.904 | 0.890  |
| Wednesday    | 0.907 | 0.970 | 0.873 | 0.922 | 0.898 | 0.907 | 0.925 | 0.893 | 0.890 | 0.898  |
| Thursday     | 0.880 | 0.896 | 0.862 | 0.903 | 0.891 | 0.869 | 0.931 | 0.865 | 0.878 | 0.873  |
| Friday       | 0.843 | 0.751 | 0.856 | 0.832 | 0.865 | 0.809 | 0.877 | 0.795 | 0.834 | 0.767  |
| Saturday     | 1.080 | 0.938 | 1.133 | 1.003 | 0.965 | 0.984 | 0.995 | 0.907 | 1.000 | 0.778  |
| Sunday       | 1.069 | 0.874 | 1.242 | 1.040 | 1.017 | 0.992 | 1.017 | 0.959 | 1.090 | 0.953  |
| DAY OF MONTH | 0.949 | 0.913 | 0.968 | 0.940 | 0.924 | 0.914 | 0.955 | 0.891 | 0.930 | 0.867  |

| July 2008    |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 0.940 | 0.898 | 0.978 | 0.942 | 0.940 | 0.889 | 0.951 | 0.914 | 0.933 | 0.842  |
| Tuesday      | 0.933 | 0.951 | 0.940 | 0.926 | 0.913 | 0.886 | 0.922 | 0.906 | 0.899 | 0.813  |
| Wednesday    | 0.926 | 0.929 | 0.928 | 0.920 | 0.927 | 0.888 | 0.884 | 0.903 | 0.912 | 0.835  |
| Thursday     | 0.876 | 0.844 | 0.880 | 0.888 | 0.901 | 0.844 | 0.885 | 0.857 | 0.885 | 0.787  |
| Friday       | 0.845 | 0.728 | 0.919 | 0.844 | 0.888 | 0.789 | 0.835 | 0.818 | 0.865 | 0.701  |
| Saturday     | 1.050 | 0.834 | 1.203 | 0.987 | 1.001 | 0.925 | 0.947 | 0.902 | 1.009 | 0.651  |
| Sunday       | 1.068 | 0.788 | 1.355 | 1.003 | 1.062 | 0.904 | 0.993 | 0.943 | 1.106 | 0.822  |
| DAY OF MONTH | 0.948 | 0.853 | 1.029 | 0.930 | 0.947 | 0.875 | 0.917 | 0.892 | 0.944 | 0.779  |

| August 2008  |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 0.916 | 0.896 | 0.952 | 0.934 | 0.943 | 0.898 | 0.949 | 0.933 | 0.932 | 0.829  |
| Tuesday      | 0.921 | 0.949 | 0.912 | 0.935 | 0.919 | 0.907 | 0.932 | 0.920 | 0.905 | 0.819  |
| Wednesday    | 0.893 | 0.916 | 0.893 | 0.915 | 0.918 | 0.890 | 0.899 | 0.905 | 0.899 | 0.809  |
| Thursday     | 0.861 | 0.842 | 0.888 | 0.892 | 0.911 | 0.850 | 0.896 | 0.882 | 0.882 | 0.788  |
| Friday       | 0.821 | 0.706 | 0.881 | 0.830 | 0.878 | 0.773 | 0.843 | 0.806 | 0.843 | 0.710  |
| Saturday     | 1.010 | 0.819 | 1.175 | 0.965 | 0.997 | 0.902 | 0.977 | 0.918 | 1.009 | 0.694  |
| Sunday       | 0.996 | 0.793 | 1.187 | 0.995 | 1.087 | 0.919 | 1.020 | 0.967 | 1.105 | 0.820  |
| DAY OF MONTH | 0.917 | 0.846 | 0.984 | 0.924 | 0.951 | 0.877 | 0.931 | 0.904 | 0.939 | 0.781  |

**Table 355**  
**Average Day of Week by Month Factors Compiled for Total Vehicles**  
**(Continued)**

| September 2008 |       |       |       |       |       |       |       |       |       |        |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY            | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday         | 1.023 | 1.027 | 1.037 | 0.978 | 0.989 | 0.975 | 1.013 | 1.000 | 0.973 | 0.990  |
| Tuesday        | 0.971 | 1.088 | 0.914 | 0.954 | 0.940 | 0.941 | 0.968 | 0.963 | 0.926 | 0.977  |
| Wednesday      | 0.946 | 1.075 | 0.895 | 0.940 | 0.935 | 0.939 | 0.928 | 0.962 | 0.902 | 0.977  |
| Thursday       | 0.923 | 0.996 | 0.888 | 0.920 | 0.927 | 0.905 | 0.940 | 0.922 | 0.899 | 0.960  |
| Friday         | 0.857 | 0.833 | 0.859 | 0.836 | 0.886 | 0.826 | 0.872 | 0.863 | 0.867 | 0.882  |
| Saturday       | 1.115 | 1.020 | 1.176 | 1.026 | 1.027 | 1.007 | 1.002 | 0.995 | 1.045 | 0.904  |
| Sunday         | 1.156 | 0.945 | 1.388 | 1.094 | 1.120 | 1.042 | 1.134 | 1.067 | 1.175 | 0.852  |
| DAY OF MONTH   | 0.999 | 0.998 | 1.022 | 0.964 | 0.975 | 0.948 | 0.979 | 0.967 | 0.969 | 0.934  |

| October 2008 |       |       |       |       |       |       |       |       |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY          | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday       | 0.961 | 1.035 | 0.932 | 0.950 | 0.976 | 0.955 | 0.984 | 1.014 | 0.951 | 1.016  |
| Tuesday      | 0.961 | 1.100 | 0.902 | 0.950 | 0.956 | 0.966 | 0.966 | 0.997 | 0.932 | 1.011  |
| Wednesday    | 0.952 | 1.074 | 0.886 | 0.942 | 0.947 | 0.965 | 0.935 | 0.996 | 0.917 | 1.024  |
| Thursday     | 0.911 | 0.983 | 0.875 | 0.907 | 0.942 | 0.905 | 0.928 | 0.953 | 0.907 | 0.983  |
| Friday       | 0.846 | 0.846 | 0.849 | 0.841 | 0.901 | 0.825 | 0.862 | 0.886 | 0.861 | 0.884  |
| Saturday     | 1.096 | 1.049 | 1.152 | 1.019 | 1.032 | 1.022 | 1.005 | 1.022 | 1.044 | 0.942  |
| Sunday       | 1.118 | 0.917 | 1.310 | 1.046 | 1.071 | 1.022 | 1.089 | 1.083 | 0.986 | 1.086  |
| DAY OF MONTH | 0.978 | 1.000 | 0.987 | 0.951 | 0.975 | 0.951 | 0.967 | 0.993 | 0.943 | 0.992  |

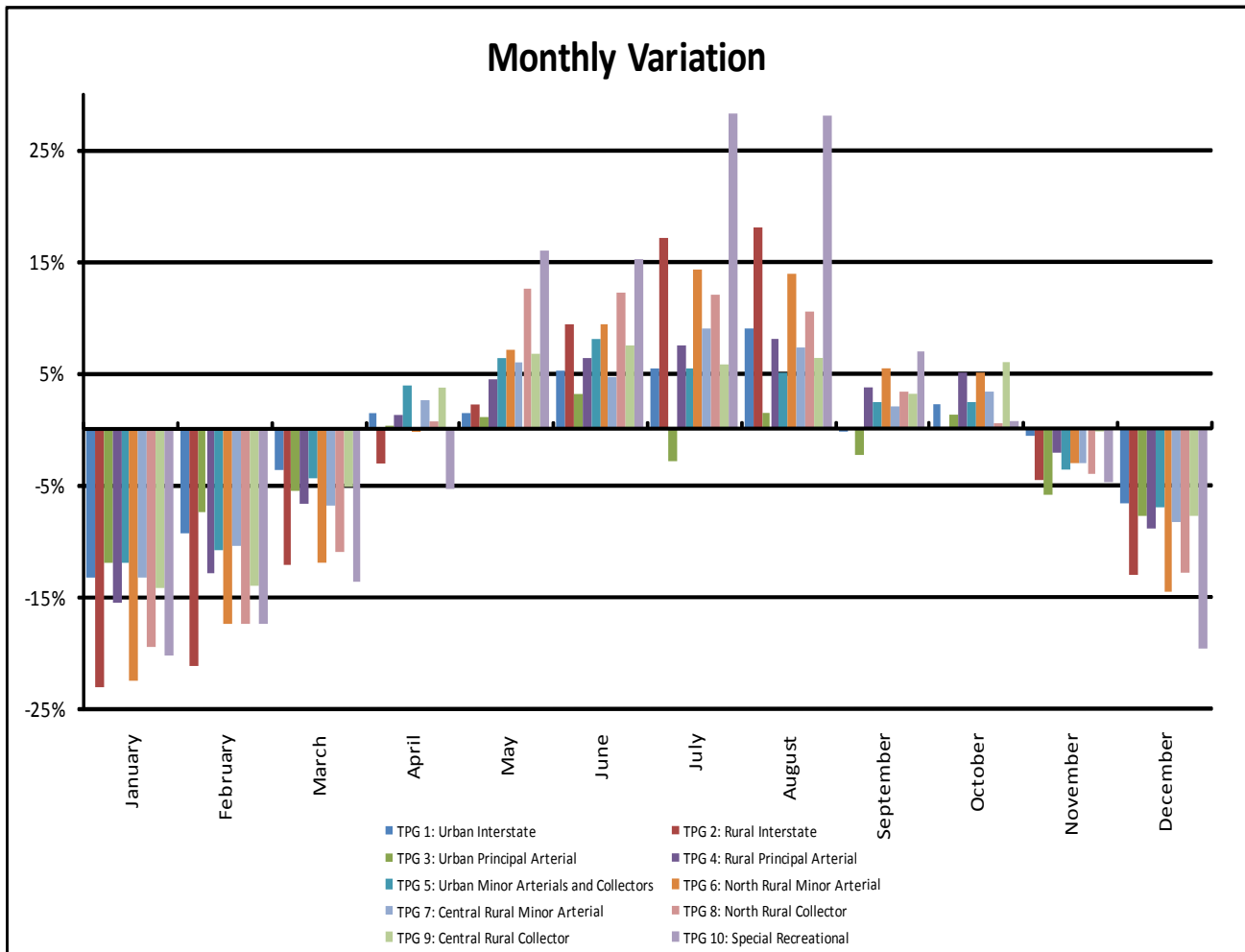
**Table 355**  
**Average Day of Week by Month Factors Compiled for Total Vehicles**  
**(Continued)**

| November 2008 |       |       |       |       |       |       |       |       |       |        |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY           | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday        | 0.985 | 1.087 | 0.965 | 1.015 | 1.022 | 1.027 | 1.031 | 1.052 | 1.008 | 1.178  |
| Tuesday       | 0.948 | 1.071 | 0.927 | 0.981 | 0.986 | 0.987 | 0.992 | 1.027 | 0.963 | 1.073  |
| Wednesday     | 0.940 | 1.070 | 0.911 | 0.964 | 0.979 | 0.981 | 0.955 | 1.022 | 0.941 | 1.071  |
| Thursday      | 0.983 | 1.045 | 0.967 | 0.978 | 1.019 | 0.994 | 1.018 | 1.004 | 0.970 | 1.053  |
| Friday        | 0.925 | 0.935 | 0.953 | 0.922 | 0.962 | 0.930 | 0.928 | 0.963 | 0.938 | 0.990  |
| Saturday      | 1.122 | 1.057 | 1.202 | 1.093 | 1.087 | 1.105 | 1.061 | 1.085 | 1.105 | 1.044  |
| Sunday        | 1.133 | 1.054 | 1.505 | 1.195 | 1.203 | 1.192 | 1.226 | 1.136 | 1.065 | 0.937  |
| DAY OF MONTH  | 1.005 | 1.046 | 1.062 | 1.021 | 1.037 | 1.031 | 1.030 | 1.041 | 0.999 | 1.049  |

| December 2008 |       |       |       |       |       |       |       |       |       |        |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| DAY           | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| Monday        | 1.045 | 1.198 | 1.004 | 1.081 | 1.049 | 1.141 | 1.078 | 1.148 | 1.060 | 1.301  |
| Tuesday       | 0.995 | 1.152 | 0.991 | 1.049 | 1.036 | 1.089 | 1.040 | 1.117 | 1.021 | 1.156  |
| Wednesday     | 0.985 | 1.109 | 0.958 | 1.028 | 1.014 | 1.080 | 1.025 | 1.093 | 1.000 | 1.168  |
| Thursday      | 0.984 | 1.089 | 0.934 | 1.010 | 1.031 | 1.110 | 1.049 | 1.081 | 1.014 | 1.202  |
| Friday        | 0.952 | 1.048 | 0.962 | 1.007 | 1.011 | 1.054 | 0.968 | 1.048 | 0.990 | 1.093  |
| Saturday      | 1.177 | 1.176 | 1.219 | 1.158 | 1.103 | 1.258 | 1.105 | 1.179 | 1.148 | 1.207  |
| Sunday        | 1.363 | 1.263 | 1.514 | 1.343 | 1.274 | 1.447 | 1.368 | 1.365 | 1.350 | 1.572  |
| DAY OF MONTH  | 1.071 | 1.148 | 1.083 | 1.097 | 1.074 | 1.168 | 1.090 | 1.147 | 1.083 | 1.243  |

## Monthly Variation Charts by Traffic Pattern Group (TPG)

The chart below shows the different variations between months and traffic pattern groups (TPG). The seasonal factors, which is the data this chart is derived from, show the percentage difference between the raw data count and the annual average daily traffic (AADT). The seasonal factors data can be found in Table 355.



**Table 365**  
**Average Day of Week by Month Factors Compiled for Truck Traffic**

The following table shows average day of week factors by month compiled for truck traffic. This data is used to convert 24-hour truck data to Average Daily Truck Traffic (ADTT). The ADTT is determined by applying the appropriate factor for the day of week and month to the truck traffic. Truck seasonal variation charts, which are based on truck traffic studies, indicate that truck traffic varies little for both the Interstate and Non-Interstate systems. On the other hand, day of week distribution does indicate a large variation between weekday (Monday through Friday) versus week-end (Saturday through Sunday) truck flow. Continuous truck data obtained from the Pennsylvania Turnpike Commission toll collection facilities was evaluated and used to formulate the required truck factors.

Delaware River toll bridges and SHRP locations that also collect continuous vehicle classification data are being evaluated and may be used in calculation of future truck factors.

| AVERAGE DAY OF WEEK BY MONTH FOR TRUCK TRAFFIC |        |         |           |          |        |          |        |
|--|--------|---------|-----------|----------|--------|----------|--------|
|  | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SUNDAY |
| JANUARY  | 0.94   | 0.87    | 0.85      | 0.84     | 0.88   | 2.34     | 3.70   |
| FEBRUARY                                       | 0.92   | 0.85    | 0.85      | 0.84     | 0.87   | 2.38     | 3.57   |
| MARCH  | 0.88   | 0.82    | 0.81      | 0.80     | 0.84   | 2.15     | 3.30   |
| APRIL  | 0.87   | 0.79    | 0.77      | 0.76     | 0.77   | 1.86     | 2.91   |
| MAY  | 0.82   | 0.78    | 0.75      | 0.75     | 0.76   | 1.82     | 2.66   |
| JUNE   | 0.83   | 0.76    | 0.75      | 0.72     | 0.74   | 1.74     | 2.40   |
| JULY   | 0.84   | 0.77    | 0.76      | 0.75     | 0.76   | 1.63     | 2.28   |
| AUGUST   | 0.81   | 0.76    | 0.76      | 0.74     | 0.75   | 1.65     | 2.27   |
| SEPTEMBER                                      | 0.82   | 0.75    | 0.73      | 0.72     | 0.73   | 1.72     | 2.41   |
| OCTOBER  | 0.80   | 0.75    | 0.74      | 0.73     | 0.74   | 1.85     | 2.46   |
| NOVEMBER                                       | 0.85   | 0.77    | 0.77      | 0.75     | 0.77   | 1.86     | 2.85   |
| DECEMBER                                       | 0.85   | 0.85    | 0.83      | 0.78     | 0.81   | 2.13     | 3.10   |



**Table 370**  
**Yearly Growth Factors**

The yearly growth factors (shown in the following table) are used to compute the current estimated average daily traffic for count data that is older than the current year. The factor application is applied by Traffic Pattern Group (TPG) and is used to calculate total vehicles and truck estimates. A limited amount of count data is processed through the Yearly Growth Factor table, since most traffic counts are for the current year.

To use this table, select the base year of the count from the "YEAR" column and multiply it by the percentage under the corresponding "TPG" row.

For example, to determine the current year estimate (2008) of a 1999 base year count having a TPG 5, multiply 1.124 (12.4%) by the AADT of the 1999 count.

| Yearly Growth Factors: 1998-2008 |       |       |       |       |       |       |       |       |       |       |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| TPG                              | 98-99 | 99-00 | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 |
| TPG 1                            | 3.0%  | 0.5%  | 2.0%  | 3.0%  | 3.0%  | 3.2%  | 3.2%  | 2.9%  | 3.0%  | 2.4%  |
| TPG 2                            | 3.0%  | 0.5%  | 2.0%  | 3.0%  | 3.0%  | 3.3%  | 3.2%  | 3.0%  | 3.0%  | 2.4%  |
| TPG 3                            | 2.0%  | 0.5%  | 2.0%  | 1.8%  | 1.0%  | 1.4%  | 1.1%  | 0.7%  | 1.1%  | 0.2%  |
| TPG 4                            | 2.0%  | 0.3%  | 1.0%  | 1.8%  | 1.3%  | 1.7%  | 1.6%  | 1.2%  | 1.3%  | 0.8%  |
| TPG 5                            | 2.0%  | 0.5%  | 2.0%  | 1.8%  | 1.0%  | 1.4%  | 1.1%  | 0.7%  | 1.1%  | 0.2%  |
| TPG 6                            | 2.0%  | 0.3%  | 1.0%  | 1.9%  | 1.3%  | 1.7%  | 1.6%  | 1.2%  | 1.3%  | 0.8%  |
| TPG 7                            | 2.0%  | 0.3%  | 1.0%  | 1.9%  | 1.3%  | 1.7%  | 1.6%  | 1.2%  | 1.3%  | 0.8%  |
| TPG 8                            | 2.0%  | 0.3%  | 1.0%  | 1.9%  | 1.3%  | 1.7%  | 1.6%  | 1.2%  | 1.3%  | 0.8%  |
| TPG 9                            | 2.0%  | 0.3%  | 1.0%  | 1.9%  | 1.3%  | 1.7%  | 1.6%  | 1.2%  | 1.3%  | 0.8%  |
| TPG 10                           | 2.0%  | 1.0%  | 1.0%  | 1.0%  | 1.0%  | 1.7%  | 1.6%  | 1.2%  | 1.3%  | 0.8%  |

The table below shows yearly growth percentages by TPG for 1998 through 2008.

| Yearly Growth Factors: 1998-2008 |       |       |       |       |       |       |       |       |       |       |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| TPG                              | 98-99 | 99-00 | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 |
| TPG 1                            | 29.5% | 25.7% | 25.1% | 22.6% | 19.1% | 15.6% | 12.0% | 8.5%  | 5.5%  | 2.4%  |
| TPG 2                            | 29.7% | 25.9% | 25.3% | 22.9% | 19.3% | 15.8% | 12.1% | 8.6%  | 5.5%  | 2.4%  |
| TPG 3                            | 12.4% | 10.2% | 9.7%  | 7.5%  | 5.6%  | 4.6%  | 3.1%  | 2.0%  | 1.3%  | 0.2%  |
| TPG 4                            | 13.8% | 11.5% | 11.2% | 10.1% | 8.2%  | 6.8%  | 5.0%  | 3.3%  | 2.1%  | 0.8%  |
| TPG 5                            | 12.4% | 10.2% | 9.7%  | 7.5%  | 5.6%  | 4.6%  | 3.1%  | 2.0%  | 1.3%  | 0.2%  |
| TPG 6                            | 13.9% | 11.7% | 11.3% | 10.2% | 8.2%  | 6.8%  | 5.0%  | 3.3%  | 2.1%  | 0.8%  |
| TPG 7                            | 13.9% | 11.7% | 11.3% | 10.2% | 8.2%  | 6.8%  | 5.0%  | 3.3%  | 2.1%  | 0.8%  |
| TPG 8                            | 13.9% | 11.7% | 11.3% | 10.2% | 8.2%  | 6.8%  | 5.0%  | 3.3%  | 2.1%  | 0.8%  |
| TPG 9                            | 13.9% | 11.7% | 11.3% | 10.2% | 8.2%  | 6.8%  | 5.0%  | 3.3%  | 2.1%  | 0.8%  |
| TPG 10                           | 13.3% | 11.1% | 10.0% | 8.9%  | 7.8%  | 6.8%  | 5.0%  | 3.3%  | 2.1%  | 0.8%  |

## Functional Class Groups

Traffic volume data displayed in PennDOT's Roadway Management System (RMS) is projected to a current estimate year (2008) based on County/Functional Class Group (FCG). This provides the user with trends relative to a specific county. The factors are applied annually to the Department's Roadway Management System (RMS) to produce the current year traffic volume estimate values.

This table shows the FCGs with a description and corresponding Functional Class Codes (FCCs).

| FCG   | DESCRIPTIVE NAME                   | FCC    |
|-------|------------------------------------|--------|
| FCG 1 | URBAN INTERSTATE                   | FCC 11 |
| FCG 2 | RURAL INTERSTATE                   | FCC 01 |
| FCG 3 | URBAN - OTHER FREEWAYS/EXPRESSWAYS | FCC 12 |
|       | URBAN - OTHER PRINCIPAL ARTERIALS  | FCC 14 |
|       | URBAN - MINOR ARTERIALS            | FCC 16 |
|       | RAMPS                              | FCC 99 |
| FCG 4 | RURAL - OTHER PRINCIPAL ARTERIALS  | FCC 02 |
|       | RURAL - MINOR ARTERIAL             | FCC 06 |
| FCG 5 | URBAN COLLECTORS                   | FCC 17 |
|       | URBAN - LOCAL                      | FCC 19 |
| FCG 6 | RURAL - MAJOR COLLECTOR            | FCC 07 |
|       | RURAL - MINOR COLLECTOR            | FCC 08 |
|       | RURAL - LOCAL                      | FCC 09 |

### Table 380 Axle Correction Factors

Axle volume count data is collected by counting vehicle axles (two axle strikes equals one vehicle). Since these counts may include a number of trucks with more than two axles, they must be corrected to represent the actual volume of total vehicles. The axle correction factors are applied to raw axle volume count data, adjusting it to a correct representative volume.

2008 Axle Correction Factors are shown in the table below.

| TPG | Axle Correction Factor |
|-----|------------------------|
| 1   | 82.53%                 |
| 2   | 68.99%                 |
| 3   | 93.79%                 |
| 4   | 89.27%                 |
| 5   | 97.09%                 |
| 6   | 92.39%                 |
| 7   | 94.80%                 |
| 8   | 95.14%                 |
| 9   | 96.46%                 |
| 10  | 95.92%                 |

## Table 385 Design Hour Factor Default Values

The design hour factor (K-factor) represents the percent of Annual Average Daily Traffic (AADT) occurring in the peak hour. This value is important in the design of roadways and capacity analysis studies.

Count data less than 24-hours and/or data not having directional volumes will not have the necessary raw data required to compute actual K-factor values. The K-factor default values were produced to complete unknown values not generated through the raw count factoring process, and to satisfy Highway Performance Monitoring System (HPMS) reporting requirements. They were developed by processing the actual hourly data from the 57 ATR stations to identify the 30th highest hour; this hourly volume was divided by the AADT for each station, producing a K-factor. The factors were then averaged by Traffic Pattern Group (TPG).

During the raw count factoring process, the K-factor value is programmatically inserted into the Roadway Management System (RMS) database if the raw count data is insufficient to calculate an actual K-factor.

2008 K-Factors and corresponding TPGs are shown in the table below.

| TPG | K factor default value |
|-----|------------------------|
| 1   | 9%                     |
| 2   | 11%                    |
| 3   | 11%                    |
| 4   | 10%                    |
| 5   | 11%                    |
| 6   | 11%                    |
| 7   | 10%                    |
| 8   | 12%                    |
| 9   | 11%                    |
| 10  | 13%                    |

## Tables 390 and 395 Equivalent Single Axle Load Factors

Equivalent Single Axle Load (ESAL) tables are used to calculate pavement loadings (rigid and flexible types) to produce a common parameter for design and planning purposes.

ESAL factors used in RMS were derived through a composite of data obtained from AASHTO guidelines and test data collected from historical Loadometer Surveys. Data obtained through WIM equipment is under review at this time and will be considered in development of future ESAL factors. The AASHTO Mechanistic Empirical Design Guide (MEPDG) has incorporated improved methods of determining loading effects of traffic. In the future, these new methods may supercede the use of ESAL factors.

2008 ESAL factors for rigid pavements are shown by Traffic Pattern Group (TPG) and vehicle classification in **Table 390**, below.

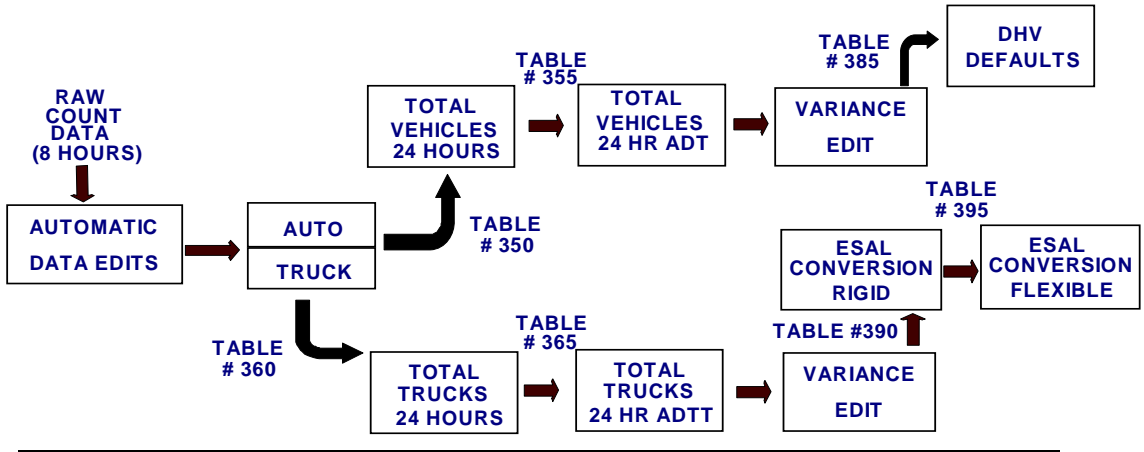
| RIGID ESAL FACTORS        |       |       |       |       |       |       |       |       |       |        |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| CLASS                     | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| BUS                       | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240  |
| 2 AXLE SIX TIRE           | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240  |
| 3 AXLE SINGLE UNIT        | 1.150 | 1.150 | 1.150 | 1.150 | 1.150 | 1.150 | 1.150 | 1.150 | 1.150 | 1.150  |
| 4 AXLE SINGLE UNIT        | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000  |
| 3 AXLE WITH TRAILER       | 0.600 | 0.600 | 0.600 | 0.600 | 0.600 | 0.600 | 0.600 | 0.600 | 0.600 | 0.600  |
| 3 AXLE MULTI-AXLE TRAILER | 1.590 | 1.590 | 1.590 | 1.590 | 1.590 | 1.590 | 1.590 | 1.590 | 1.590 | 1.590  |
| 6 AXLE SINGLE TRAILER     | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421  |
| 5 AXLE MULTI TRAILER      | 2.400 | 2.400 | 2.400 | 2.400 | 2.400 | 2.400 | 2.400 | 2.400 | 2.400 | 2.400  |
| 6 AXLE MULTI TRAILER      | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421  |
| 7 AXLE MULTI TRAILER      | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421 | 1.421  |

2008 ESAL factors for flexible pavements are shown by Traffic Pattern Group (TPG) and vehicle classification in **Table 395**, below.

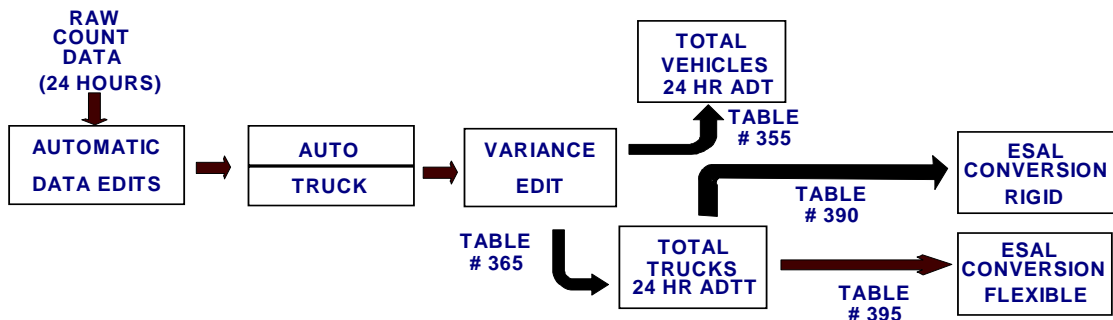
| FLEXIBLE ESAL FACTORS     |       |       |       |       |       |       |       |       |       |        |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| CLASS                     | TPG 1 | TPG 2 | TPG 3 | TPG 4 | TPG 5 | TPG 6 | TPG 7 | TPG 8 | TPG 9 | TPG 10 |
| BUS                       | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240  |
| 2 AXLE SIX TIRE           | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240  |
| 3 AXLE SINGLE UNIT        | 0.820 | 0.820 | 0.820 | 0.820 | 0.820 | 0.820 | 0.820 | 0.820 | 0.820 | 0.820  |
| 4 AXLE SINGLE UNIT        | 4.500 | 4.500 | 4.500 | 4.500 | 4.500 | 4.500 | 4.500 | 4.500 | 4.500 | 4.500  |
| 3 AXLE WITH TRAILER       | 0.440 | 0.440 | 0.440 | 0.440 | 0.440 | 0.440 | 0.440 | 0.440 | 0.440 | 0.440  |
| 3 AXLE MULTI-AXLE TRAILER | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000  |
| 6 AXLE SINGLE TRAILER     | 0.750 | 0.750 | 0.750 | 0.750 | 0.750 | 0.750 | 0.750 | 0.750 | 0.750 | 0.750  |
| 5 AXLE MULTI TRAILER      | 2.330 | 2.330 | 2.330 | 2.330 | 2.330 | 2.330 | 2.330 | 2.330 | 2.330 | 2.330  |
| 6 AXLE MULTI TRAILER      | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276  |
| 7 AXLE MULTI TRAILER      | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276 | 1.276  |

## Roadway Management System Factor Table Application Flow Chart

### I. MANUAL COUNT (LESS THAN 24 HOURS)

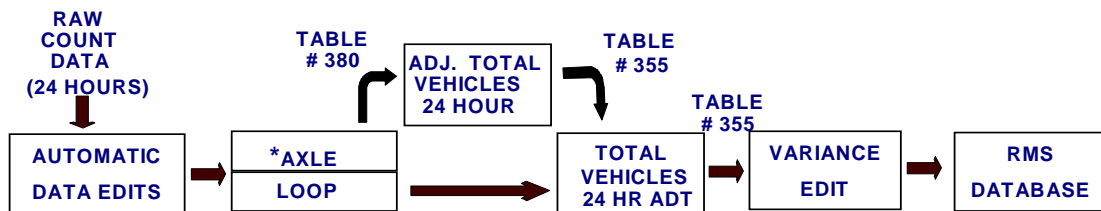


### II. AUTOMATIC VEHICLE CLASSIFICATION COUNT



Note: DHV is computed from the raw count data.

### III. AXLE AND LOOP VOLUME COUNTS



\* Total Vehicles are computed by counting axles (2 axles equals 1 Vehicle)

## Acronyms

|        |  |
|--------|--|
| AADT   | Annual Average Daily Traffic                                     |
| AASHTO | American Association of State Highway & Transportation Officials |
| ACF    | Axle Correction Factor   |
| ADL    | Average Daily Load   |
| ADT    | Average Daily Traffic  |
| ADTT   | Average Daily Truck Traffic                                      |
| AGF    | Annual Growth Factor   |
| ATR    | Automatic Traffic Recorder                                       |
| AVC    | Automatic Vehicle Classification                                 |
| CAVC   | Continuous Automatic Vehicle Classification                      |
| DHV    | Design Hour Volume   |
| DOW    | Day Of Week  |
| DRJTBC | Delaware River Joint Toll Bridge Commission                      |
| DVMT   | Daily Vehicle Miles of Travel                                    |
| ESAL   | Equivalent Single Axle Load                                      |
| FCC    | Functional Classification Code                                   |
| FCG    | Functional Classification Group                                  |
| FHWA   | Federal Highway Administration                                   |
| GIS    | Geographic Information System                                    |
| HMPS   | Highway Performance Monitoring System                            |
| HVTIS  | Heavy Vehicle Travel Information System                          |
| ITDUS  | Internet Traffic Data Upload System                              |
| ITS    | Intelligent Transportation Systems                               |
| LTPP   | Long Term Pavement Performance                                   |
| MEPDG  | Mechanistic Empirical Design Guide                               |
| MFC    | Maintenance Functional Classification                            |
| MPO    | Metropolitan Planning Organization                               |
| RPO    | Rural Planning Organization                                      |
| RMS    | Roadway Management System  |
| SHRP   | Strategic Highway Research Program                               |
| SR     | State Route  |
| STIP   | Short-Term In-Pavement   |
| TIS    | Traffic Information System                                       |
| TMG    | Traffic Monitoring Guide   |
| TMS/H  | Traffic Monitoring System for Highways                           |
| TPG    | Traffic Pattern Group  |
| TR     | Traffic Route  |
| WIM    | Weigh-in-Motion  |



## Index

|   |             |                                  |        |
|---|-------------|----------------------------------|--------|
| AA DT .....                                       | 4, 22,28,37 | Heaviest Holiday Period .....    | 26     |
| ADTT .....  | 45          | Inductive Loops .....            | 5      |
| Automatic Traffic Recorders .....                 | 6           | K-Factor .....                   | 28, 49 |
| Station Locations .....                           | 8,11        | Manual Counts .....              | 5      |
| Locations by Traffic Pattern Group .....          | 12          | Pneumatic Tubes .....            | 5      |
| Five Year ADT Summary .....                       | 22          | Statewide Traffic Trends .....   | 24     |
| Monthly Variations from AADT .....                | 42          | Toll Receipts .....              | 5      |
| Peak Hour .....                                   | 14          | Traffic Growth Projections ..... | 46     |
| Statewide Trends .....                            | 24          | Traffic Pattern Group .....      | 12     |
| 30th Highest Hour .....                           | 16          | Weigh-In-Motion .....            | 5, 11  |
| 50th Highest Hour .....                           | 18          |                                  |        |
| Axle Correction Factors .....                     | 48          |                                  |        |
| Axle Counts .....                                 | 5           |                                  |        |
| Continuous Automatic Vehicle Classification ..... | 5           |                                  |        |
| Data Collection .....                             | 4, 5        |                                  |        |
| Design Hour Volume .....                          | 20,49       |                                  |        |
| Design Hour Summaries .....                       | 20          |                                  |        |
| Equivalent Single Axle Load .....                 | 28,50       |                                  |        |
| Rigid .....                                       | 50          |                                  |        |
| Flexible .....                                    | 50          |                                  |        |
| Factors .....                                     | 28          |                                  |        |
| Average Day of Week for Total Vehicles .....      | 37          |                                  |        |
| Average Day of Week for Truck Traffic .....       | 45          |                                  |        |
| Axle Correction .....                             | 48          |                                  |        |
| County Functional Class Group Trends .....        | 47          |                                  |        |
| Factor Table Application Flowchart .....          | 51          |                                  |        |
| Growth Factor .....                               | 46          |                                  |        |
| Hourly Percentages for Total Vehicles .....       | 29          |                                  |        |
| Hourly Percentages for Truck Traffic .....        | 34          |                                  |        |
| K-Factor .....                                    | 28, 49      |                                  |        |
| Monthly Variation .....                           | 42          |                                  |        |
| Traffic Growth Projections .....                  | 46          |                                  |        |
| Yearly Growth .....                               | 46          |                                  |        |
| Functional Class .....                            | 47          |                                  |        |