

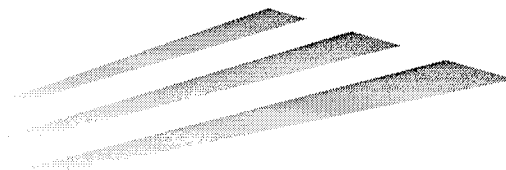


PB99-146318

KENTUCKY TRANSPORTATION CENTER

College of Engineering

**ANALYSIS OF VEHICLE CLASSIFICATION DATA,
INCLUDING MONTHLY AND SEASONAL ADT FACTORS,
HOURLY DISTRIBUTION FACTORS, AND
LANE DISTRIBUTION FACTORS**



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**Research Report
KTC-98-21**

**ANALYSIS OF VEHICLE CLASSIFICATION DATA,
INCLUDING MONTHLY AND SEASONAL ADT FACTORS,
HOURLY DISTRIBUTION FACTORS, AND
LANE DISTRIBUTION FACTORS**

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in cooperation with
Transportation Cabinet
Commonwealth of Kentucky

and

Federal Highway Administration
U.S. Department of Transportation

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November 1998




1. Report No. KTC-98-21	 PB99-146318	3. Recipient's Catalog No.	
4. Title and Subtitle Analysis of Vehicle Classification Data, Including Monthly and Seasonal ADT factors, Hourly distribution Factors and Lane Distribution		5. Report Date November 1998	
		6. Performing Organization Code	
7. Author(s) David I. Allen, Nikiforos Stamatiadis, and R. Clark Graves		8. Performing Organization Report No. KTC-98-21	
9. Performing Organization Name and Address Kentucky Transportation Center College of Engineering University of Kentucky		10. Work Unit No. (TRAVIS)	
		11. Contract or Grant No. KYSPR-95-161	
		13. Type of Report and Period Covered Final	
12. Sponsoring Agency Name and Address Kentucky Transportation Cabinet State Office Building		14. Sponsoring Agency Code	
		15. Supplementary Notes Publication of this report was sponsored by the Kentucky Transportation	
16. Abstract This report documents the development of monthly and seasonal ADT factors for performing estimating AADT's. It appears that seasonal factors can estimate AADT as well as monthly factors, and it is recommended that seasonal factors be used. Hourly distribution factors were also developed in this study. These are to be used in life-cycle costing analyses for calculating queue lengths in estimating user delay costs. In this study, a comparison was made between automatic vehicle classification counters and manual counts. For the type of equipment used, automobiles were overestimated, pickup trucks were underestimated, and Type 9's were also underestimated. Lane distribution factors were developed in this study. The factors were developed as a function of ADT and percent of trucks.			
17. Key Words ADT Factors Lane Distribution Factors Seasonal ADT Factors Hourly Distribution Factors Vehicle Classification Monthly ADT Factors		18. Distribution Statement Unlimited	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 140	22. Price



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Acknowledgments

We, the members of the research team, wish to express our gratitude and thanks to the members of the Study Advisory Committee for sharing their expertise and valuable advice with us during the course of the study. We would also like to thank the employees of the Division of Transportation Planning, including Mr. Allen Rucker and Mr. Dan Inabnitt, for generously supplying the research team with valuable and necessary data. We would especially like to thank Mr. Rob Bostrom, Chairman of the Study Advisory Committee, for his numerous hours of consultation and advice, and for reviewing and editing this report.



INTRODUCTION

The increased use of automated equipment such as Automatic Vehicle Classifiers (AVC) and Weigh-In-Motion (WIM) scales produces a large amount of new data that can provide some insights on understanding traffic patterns more efficiently. Accurate estimates of average daily traffic (ADT) as well as vehicle-miles of travel (VMT) by vehicle type are required for a variety of traffic studies. Such data can be used in estimating truck traffic for highway cost allocation studies, in predicting traffic volumes for roadways, and in estimating accident rates for various vehicle categories.

The use of traffic counts and vehicle classification data to develop ADT and VMT measures is a common practice throughout the USA. In the past, limitations in manpower and equipment have prevented vehicle classification data from being obtained in all seasons of the year. Even though currently improved technologies allow for collection of continuous vehicle classification data for longer periods, data are not collected for all seasons due to budgetary constraints and equipment shortage. Therefore, it is important to understand the relationship between the data collected in one season or month of the year to the entire year. This relationship, if known, could be used to "expand" or extrapolate short-term traffic data to describe traffic characteristics for the entire year. Therefore, seasonal, weekly, and hourly adjustment factors become important. Traffic information developed from these adjustment factors can be used to develop accurate estimates of traffic for any given period and can be used for a variety of purposes and studies. In addition, the American Association of State Highway and Transportation Officials' (AASHTO) Guidelines for Traffic Data Programs encourages the application of seasonal adjustments to vehicle classification count data.

Historically, the Kentucky Transportation Cabinet (KYTC) has applied seasonal adjustment factors to factor routine short-term volume counts. However, a procedure to apply seasonal as well as weekly and hourly adjustment factors to short-term vehicle classification counts has not been developed. Previous research has shown that there are indeed seasonal and weekly variations among the various vehicle classes (1, 2, 3).

Another important factor in traffic data analysis is the distribution of traffic across the lanes of a multi-lane highway facility. It is important to know how heavier vehicles are distributed as this affects the distribution of ESALs on the various lanes. For instance, it is necessary to know the ESALs in the design lane in order to determine the thickness of a new pavement or a pavement overlay. In 1985, Deacon et. Al. (4) developed lane distribution factors that are currently being used

by the Kentucky Transportation Cabinet to calculate ESALs. One of the objectives of this study was to develop a set of updated lane distribution factors.

There is also some concern with the accuracy of the automated equipment in classifying the various vehicle types according to the Federal Highway Administration's recommended classification distribution -- Scheme F. Is this equipment accurately identifying the types and cataloging them into the correct "bins"?

This study was initiated to develop the ADT factors, lane distribution factors, and to attempt to determine the accuracy of the automated equipment. The major tasks of this study were defined as follows:

- (1) Conduct a survey of states to determine the level of activity in the development of seasonal adjustment factors,
- (2) Analyze vehicle classification data and develop seasonal adjustment factors,
- (3) Develop lane distribution factors,
- (4) Improve the accessibility of the Vehicle Classification File,
- (5) Analyze the accuracy of the automated classification equipment, and
- (6) Prepare a final report.

SURVEY OF STATES

The first step in this study was to conduct a survey of current uses of vehicle classification data and identify methods used for data collection throughout the United States. The objective of the survey was to determine the current use of vehicle classification data by each state and to identify potential methodologies on developing and using adjustment factors for predicting ADT by vehicle type. The survey included questions concerning the collected classification data, methods for developing adjustment factors, use of any adjustment factors, current equipment usage, and other related topics. Thirty-two of the 50 states surveyed returned the questionnaire. With a response rate of 64%, a clear scope of the current vehicle classification practices across the country can be obtained.

QUESTION 1:

Since vehicle classification data can be used for a variety of reasons and purposes, it was deemed essential to determine these uses from the outset of the survey. Thus, the first question

identifies the uses of vehicle classification. The predominant use of these data is for operational purposes, which include roadway design, pavement maintenance, and development of ADT estimates, as it was indicated by 15 states. HPMS requirements as well as equivalent axle load (EAL) estimates were the primary reasons for collecting these data by 13 states. Three states use the classification data for user fee and cost allocation studies while another three states consider these data important for SHRP test sections. Five states report that these data are currently not used for any specific purpose. Please note that the total number of states does not add to 32 because a number of states indicated multi-use of these data.

QUESTION 2:

The next question asked aims to determine whether seasonal adjustment factors are used and how they are applied. The practice of using seasonal adjustment factors to correct short-term counts is not a widely spread practice among the states. Only nine states currently use some adjustment factors to address seasonal variability in traffic counts (Figure 1). Four of those states develop adjustment factors and use them to adjust short-term counts to obtain ADT while another state developed factors to be used only for truck ADT estimates. The remaining states did not specify the use of these factors and thus, no further comments can be made. Moreover, there is a great variability among these nine states on the development of these adjustment factors. Uses of automatic traffic counters (ATRs), WIM, and AVC devices are prominent methods for developing seasonal factors. In addition, use of toll receipts to adjust truck data only, use of monthly average daily traffic as seasonal indicators, and sampling in various seasons are other approaches identified in the survey.

QUESTION 3:

An additional question, addressed to those states which do not currently use any seasonal factors, aimed to determine whether any such factors will be developed in the future. Among the 23 states that do not currently use any seasonal adjustment factors, only 10 are considering any future development and use of such adjustment factors. An examination of the geographical distribution of the states responding to this question (Figure 1) did not provide any information relating the location of the state to the use of seasonal adjustment factors. Therefore, the lack of seasonal adjustment factors for these states is not due to the absence of seasonal variation.

QUESTION 4:

The AVC data collectors classify vehicles into a vehicle type using its length and weight. However, a number of vehicles cannot be properly classified for a variety of reasons and thus, are

categorized as unclassified. Obviously, a large percentage of unclassified vehicles is not desirable, since it will produce unreliable estimates of traffic. The appropriate treatment of these unclassified vehicles--elimination or reallocation--is an issue requiring attention. Moreover, identifying the type of vehicle for these unclassified vehicles is usually a difficult task and, most likely, will affect the reliability of the traffic estimates. The absence of any standards for an acceptable range as well as treatment of unidentified vehicles lead to an investigation of existing practices among the states. Only one state, Wyoming, reported a zero tolerance for unidentified vehicles when using Scheme F--a 15-class vehicle classification pattern used by FHWA for HPMS. Five states indicated that their acceptable level is less than 10 percent and 20 states indicated 10 percent as the acceptable level for unclassified vehicles. Finally, only two states have acceptable ranges higher than 10 percent for unclassified vehicles.

QUESTION 5:

The treatment of the unclassified vehicles--ignored or allocated to another category--is also of concern. The surveyed states indicated five different treatments. The majority, 19 states, completely ignore any vehicles which are not classified properly during the classification counts. The remaining states use some reallocation of the unclassified vehicles. Two states allocate them to Class 15 (unknown vehicle type) and three other states allocate them into the automobile category. Four states indicate that they allocate the unclassified vehicles but no specific category was identified. Finally, two states, North Carolina and Minnesota, either allocate or ignore the vehicles depending on the surrounding circumstances. In Minnesota, the vehicles are either allocated or ignored depending on the amount of information known about the vehicles. If the vehicle length or axle spacing is available, the vehicle class is estimated by length. If neither length nor spacing is known, the vehicle is ignored. In North Carolina, treatment of the vehicles is dependent on the use of the data. Also, the unidentified vehicles are ignored or allocated based on volume distribution percentages.

An interesting aspect is the relationship between the acceptable percentage of unclassified vehicles and the treatment of these vehicles. The survey data, shown in Table 1, does not reveal any relationship between the variables of concern. For states with a tolerance level less than 10 percent, the number of states that ignore these vehicles is equal to the number of those which reallocate them. The same is true for those states with the 10 percent level of acceptance. Moreover, there is no specific pattern among those states that reallocate the unclassified vehicles, since almost equal numbers allocate them in all possible categories. Finally, the two states with above 10 percent tolerance indicate that they ignore all unclassified vehicles. Based on these observations, one may

conclude that the 10 percent appears to be the common threshold for accepting unclassified vehicles. However, the treatment of unclassified vehicles is a decision that an agency needs to make based on the intended use of the data and the effort required to correctly classify them.

QUESTION 6:

The survey also asked the responding agencies to voice any comments on the current practices of vehicle classification counts as well as to indicate any suggestions to future developments in vehicle classification technology. A number of states expressed a concern for the difficulty of developing seasonal adjustment factors as well as the reliability of these factors over time. The desire to move to a length-based classification was another comment made by several states. The amount of data required to develop adjustment factors is probably the single biggest deterrent for developing such factors. The required number of permanent classification stations is another issue to be addressed. Given that unclassified vehicles will always be present, the treatment of these vehicles had a significant impact on the development of any procedures. Finally, an issue of concern for a number of state agencies is the reliability of the equipment; a concern that was captured by the unanswered question of a state official "Is there a product available that classifies accurately?"

RURAL, MONTHLY ADT FACTORS

The next task in this study consisted of developing adjustment factors that can be applied to short-term counts for determining the ADT estimates. This research effort aimed to develop two sets of adjustment factors to account for seasonal and daily variations. *It should be noted that all ADT factors developed in this study are for individual vehicle class and are not for total ADT.*

Data were collected using ATRs from rural interstates and rural non-interstates for developing the monthly adjustment factors. The following sites were the ATR stations that were used in the analysis.

<u>Interstates</u>	<u>Non-Interstates</u>
ATR-22 (I-64, Shelby County)	ATR-52 (KY 9 [Formerly KY 546])
ATR-23 (I-75, Grant County)	ATR-53 (BG Parkway, Woodford County)
ATR-46 (I-75, Rockcastle County)	
ATR-47 (I-64, Carter County)	
ATR-48 (I-71, Henry County)	
ATR-51 (I-24, Lyon County)	

The adjustment factors were developed following the recommended practices in the *Standard Practice for Highway-Traffic Monitoring* (5) but were defined slightly different to accommodate existing data in Kentucky. The factors were determined for four different classes of roadways--rural interstates and parkways, urban interstates and parkways, rural non-interstates and non-parkways, and urban non-interstates and non-parkways. Moreover, 84 adjustment factors were developed for each day and month of the year (7 days x 12 months) and a separate set was developed for each vehicle type (15 vehicle types).

To proceed with the development of these factors, it was first necessary to calculate the ADT for each vehicle type. To accomplish this task, a three-step process was taken. First, the seven averages for each day of the week, Monday through Sunday, in a given month were estimated for each vehicle type. Then, these Monthly Average Days of Week (MADW) traffic were averaged for each month and multiplied by the number of days of the month to estimate the Total Monthly Volume (TMV_i) for each month i. Finally, the ADT was calculated as the division of the total annual volume ($\sum(TMV_i)$, for i =1 to 12) by the 365 days of the year. The adjustment factors for each vehicle type k, $(f_{ij})_k$, are then defined for each day i and month j as $(f_{ij})_k = (MADW_{ij})_k / (AADT)_k$. The adjustment factors developed here can be used for vehicle classification or volume short-term counts, since an additional set of factors was developed for all vehicle classes.

For the development of these factors, six ATR stations were used for interstate calculations and four stations were used for non-interstate calculations. All stations are permanent locations and collect continuous data throughout the year. Two years of data were used for the calculation of the seasonal adjustment factors. The adjustment factors for rural interstates and parkways for all vehicle types are shown in Table 2. To obtain an ADT estimate, one needs to divide the short-term count by the corresponding day and month factor. For example, if a count of 4,000 automobiles was taken on a rural interstate on a Wednesday in July, the estimated automobile ADT for this road would be $(4,000/1.036) = 3,861$ automobiles. Following a similar approach, all vehicle types can be adjusted and then summed to develop an ADT estimate based on the short-term count.

Figures 2 through 8 illustrate the monthly variation in traffic reflected through the adjustment factors for all vehicle types by day of the week. Figures 9 through 22 show monthly variation for each vehicle type. The data in Figures 10 and 17 indicate a sharp seasonal variation for automobiles (Type 2) and very little variation for 5-axle, semi-trailers (Type 9). Table 2 also indicates a strong relationship between the day of the week and the adjustment factors. Moreover, the adjustment factors for Type 2 and Type 9 follow different trends. Traffic counts for semi-trailers

during weekdays will show volumes higher than their ADT, while weekend counts will show volumes lower than their ADT. The opposite trends are noted for automobile counts--lower volumes in weekdays and higher volumes during weekends.

Figures 23 through 29 demonstrate the monthly variations in traffic for the rural non-interstate and non-parkway data for all vehicle types by day of the week. Figures 30 through 43 show the monthly variation for each vehicle type. The monthly variation is still present in Figure 23 through 29 with approximately the same amount of variability for automobiles but a higher seasonal variability for the 5-axle semi-trailers. This is an expected phenomenon, since seasonal patterns do affect the travel trends of heavy vehicles on non-interstate roads; contrary to a more constant pattern on the interstate system. Automobiles show less variation between weekday and weekend travel indicating more stable trends for the non-interstate automobile travel.

To demonstrate the usefulness of distinguishing among the various vehicle types, similar adjustment factors were developed for all traffic without any distinction for the vehicle type. These trends are shown in Figures 44 through 47. An examination of the three trend lines indicates that the general trend of all vehicles follows closely the automobile trends and cannot be used to approximate the adjustment factors for the 5-axle semi-trailers--an observation that holds true for both interstate and non-interstate system. Therefore, the development of such factors for each vehicle type is essential for accurate estimates of the ADT by different types of vehicles. However, if the desired estimate is an ADT without any distinction for vehicle types then, the adjustment factors for all vehicles can be used to adjust a volume short-term count.

Therefore, it appears that adjustments in traffic volume estimates that account for day of the week and month of the year in which the classification count was obtained could provide better estimates of ADT by vehicle type and thus, can provide a more accurate basis from which other traffic estimates, like ESAL and VMT, can be calculated.

Vehicle classification data for 1995 from continuous ATR sites were used to validate the ADT factors. First, ADT estimates are obtained for each vehicle type and all vehicles for roadway segments where ATR equipment are located. Then daily counts from these sites are randomly selected, and using the adjustment factors developed, these daily counts are adjusted and compared to the true ADT.

Following this approach, a total of seven sites (three interstate and four non-interstate) were

tested and four months of data for each site were chosen. Daily counts were excluded if more than 10 percent of unclassified vehicles was counted (because this is the tolerance level for the state of Kentucky), questionable classifications were present (unreasonable high percentage of motorcycles) or all classified vehicles were present in one class. By eliminating the daily counts for each site not conforming to the above rules, the total number of counts ranged between 27 to 103.

For each site, three different estimates of the ADT are obtained. The first is based on the unfactored data by simply averaging the daily counts. The second estimate is obtained by factoring the counts for each vehicle type, adding these estimates to produce the ADT, and finally averaging these estimates. The third estimate is calculated by simply factoring the total daily counts and then calculating the average of these estimates. To compare the accuracy of each of these estimates with the true ADT, the Mean Absolute Error (MAE) is used. This error is the average of the absolute values of the differences between the estimates of ADT and true ADT expressed as a percentage of the true ADT.

The data shown in Table 4 indicate a wide range in the MAE values, but a consistent pattern--the error is smaller when factoring is used compared to the unfactored estimates. Moreover, some differences can be noted for the two types of highways. For rural interstates, the use of the second method (i.e. factoring each vehicle type and then summing all to produce the ADT) produced smaller errors compared to the other factoring method (i.e. factoring the total volume). On the other hand, for rural non-interstate roads, there was approximately the same improvement on the estimates compared to the unfactored estimates by using either factoring method (i.e. each vehicle type or all vehicles). This difference is probably attributed to the differences in the amount of vehicles for each vehicle class. There is a larger percentage of heavy vehicles on interstate roads and thus, the use of adjustment factors for individual vehicle classes improves the overall estimates. Similarly, the smaller percentage of heavy vehicles in non-interstate roads results in approximating the entire traffic by the trends of the dominant vehicle type--passenger cars. The overall improvement in ADT estimates for interstate sites was 44 percent between the unfactored and factored by vehicle class and 35 percent between the unfactored and factored sum. Similarly, for non-interstates these improvements were 36 percent in both cases.

The next step in the analysis involved the determination of the impact of unclassified vehicles. Vehicles that do not conform to the predetermined length and axle configurations are recorded as class 15 and are included both in the total counts and the ADT estimates. Two approaches were considered here in determining their impact. The first, excludes all class 15

vehicles from all computations. The second method adds them to class 2 vehicles, thus considers them as passenger cars, and then their sum is factored. It has been hypothesized that the unclassified vehicles are more likely to be two passenger cars with very small spacing. The three different approaches used in the previous analysis for determining the ADT were also considered here and MAE's were computed for each method.

Based on this analysis, neither method improved the accuracy of the ADT estimates (Table 5). A slight improvement was noted when these vehicles were eliminated from the counts and it was more obvious for the sites having a relatively high percent of unclassified vehicles. However, these differences were not statistically significant. One fact that should be considered at this point is that these sites were already filtered for the presence of unclassified vehicles and this may explain the absence of any improvement.

To further validate the ADT factors, data from two ATR sites (ATR-23 and ATR-47) were used to calculate mean ADT's for these sites by month. Data for April and July were used for ATR-23 and January, April, July, and October were used for ATR-47. Table 6 shows the means that were calculated from the equipment as well as the means that were predicted from the ADT factors. There was excellent agreement among all the data, lending confidence in the validity of the factors.

RURAL, SEASONAL ADT FACTORS

After the monthly ADT factors had been developed, some members of the Study Advisory Committee were concerned that there would not be enough personnel available to collect and process the amount of vehicle classification data necessary to support the maintenance and updating of monthly ADT factors. Therefore an alternate factoring scheme based on four sets of seasonal factors was examined. The months were combined into seasons by the following scheme:

Winter----- December, January, February;
Spring----- March, April, May;
Summer----- June, July, August;
Fall----- September, October, November.

For rural interstates and parkways, the ADT factors in Table 2 were averaged for the three months in each season for all vehicle types individually, and for each day of the week. This method

of combining the factors gives equal weight to the data in each month, regardless of how much data one month may have had as compared to the other months. Tables 7 through 10 list the seasonal ADT factors for rural interstates and parkways, for the four seasons. In those tables, Vehicle Type 16 represents all vehicle types combined.

Tables 11 through 14 are the seasonal factors for rural non-interstates and parkways. It should be noted that there are some blank cells in those tables. This indicates there was insufficient data to calculate a factor for that particular vehicle type and day of the week.

Table 15 is a comparison of seasonal factors with monthly and unfactored AADT's from two interstate sites (ATR-23 and ATR-47). The AADT calculated from both the seasonal and monthly factors compare well with the unfactored AADT except for ATR-47 (January 1995). The reason is that the traffic patterns for this site were unique from the other interstate sites in that the weekend traffic was considerably less than the weekday traffic. The remaining interstate sites, from which the factors were developed, had weekend traffic volumes that were equal to or greater than weekday traffic. This unique traffic pattern at the ATR-47 site caused the ADT factors to overestimate the traffic.

To determine the effects of using seasonal factors instead of monthly factors on the major contributor to highway loads (5-axle, semi-trailers [Type 9]), a statistical analysis was performed to calculate the percentage difference between monthly and seasonal factors. The greatest difference was 15.4 percent (Sunday in January). The mean difference was only 4.5 percent with a standard deviation of 3.5 percent. When comparing seasonal factors with unfactored data, the mean difference was 2.4 percent with a standard deviation of 1.8 percent.

URBAN, MONTHLY ADT FACTORS

Because ATR data for urban sites was very limited, it was suggested by the Study Advisory Committee to use VCR data that had a count of 24 hours or greater. VCR data from 1993 and 1994 was used. The following steps were used in analyzing the data.

1. All available data with 24 hours or greater counts were used and were sorted into urban and rural. Only the urban data was saved.

2. Urban data were sorted into "interstate" and "other".
3. The data were then sorted into separate files for each vehicle class for both interstate and other.
4. For a given vehicle classification, the data were sorted by month and then by day.
5. Using the 1993 and 1994 calendar, a weekday was assigned a number 1 to 7 (Sunday=1, Saturday=7).
6. Those data were sorted by day number assigned in (5) above.
7. For each day, the number of vehicles counted were summed and the number of hours within that smaller block were counted for each year.
8. A matrix was created with day number on the vertical and month number on the horizontal scale. The sums and counts from (7) above were entered into the appropriate month and day block within the matrix.
9. The counted vehicles and the number of hours for 1993 and 1994 were added together and an "average number of vehicles per hour" was calculated for each weekday.
10. A seven-year span was used to count the number of "Sundays", "Mondays", etc. for each month, they were then summed, and an average obtained by dividing by 7. By using the number to the nearest "tenth", the total was 365.3 days.
11. The number of "Sundays" in January (and every other month, from (10) above) were multiplied by 24 hours and by the number of counted vehicles per hour to obtain the number of vehicles per day. This was repeated for "Monday", "Tuesday", etc.
12. The results of (11) above were summed and averaged for entries greater than zero by day across each month.
13. For each multiplied result for each day of each month in (11) above, that value was divided by the total for that day from (12) above. This resulted in the ratio of counted vehicles per day of week per month. The average for each month was also calculated.

The results of the above analysis for Urban Interstates and Urban Other are shown in Tables 16 and 17, respectively. There are many cells that are zero, indicating insufficient data to calculate a factor. Clearly, more urban data are needed.

URBAN, SEASONAL ADT FACTORS

Because of the lack of urban data and because of the perceived lack of personnel to collect urban data in the future, the researchers decided to combine the monthly, urban ADT factors into seasonal factors, as was done with the rural factors. Tables 18 through 21 are the seasonal factors for Urban Interstates, and Tables 22 through 25 are the factors for Urban Other. There is very little Saturday and Sunday data, and numerous other cells are blank. Because of the number of empty cells, no analysis was attempted to determine trends.

HOURLY DISTRIBUTION FACTORS

In performing detailed life-cycle costs analyses, it is necessary to know the distribution of daily traffic by hour, in order to calculate queue lengths and speed through the work zone. Also, if were ever necessary to calculate AADT from data collected by vehicle classification recorders (VCR) that was less than a 24-hour count, hourly distribution factors can be used to calculate daily volumes and those daily volumes can then be used to calculate AADT from the seasonal factors developed in this study.

1994 VCR data were used to perform the analysis. The following are the number of stations that had counts of 24 hours or more that was used in the analysis:

Urban Interstates	16 Stations,
Rural Interstates	7 Stations,
Parkways	2 Stations,
Urban Other	35 Stations,
Rural Other	77 Stations.

The data were grouped into the four categories that has been used in this study. For each category, the data were further grouped into four seasons. By examining of seasonal hourly distributions for

Vehicle Type 9 and all vehicle types, it was concluded that there was insignificant seasonal variation on hourly factor. Tables 26 through 29 lists the hourly factors for the four categories by vehicle type and hour of the day.

Figures 48 through 55 show examples of hourly distributions for the four categories, for Type 9 and all vehicles combined. As expected, when all vehicles are plotted, there are two peaks in the trend (morning and evening) that is largely influenced by automobiles (Type 2). Type 9 has only one peak around midday with the non-interstate highways having a sharper peak than interstate highways.

ANALYSIS OF AUTOMATIC MACHINE COUNTS VERSUS MANUAL COUNTS

To analyze the accuracy of automatic vehicle classifiers and their ability to classify vehicles according to the Federal Highway Administration's Scheme F, data were obtained from the Division of Transportation Planning. The data included stations where automatic vehicle classification data (ATR) and manual classification data were available. Data from 1996 and 1997 were used. The following are the stations and dates at which the data were taken.

1996 Locations

Station	Route	Dates
37P01	US 60	July 2, 3
106P22	I-64	July 23, 24, 26
98P70	US 119	May 3, 8, 13, 14
100P32	US 27	January 23, 24
120P53	BG Parkway	July 10, 11 and Aug. 1, 6
56P98	I-265	April 24, 30 and May 1
120P60	US 60	February 28

1997 Locations

Station	Route	Dates
106P22	I-64	May 14, 15, 19, 20, 27, 29
37P01	US 60	May 27, 28 and June 2
59502	US 25	June 3, 5

For each year, all of the data from the automatic counters for each vehicle class or type was regressed against the data for each vehicle class from the manual counts (Manual Count = independent variable, Automatic Count = dependent variable). The regression coefficient of the X term then becomes the correction factor or error function for that vehicle type. This was calculated for each vehicle class for each year. The error functions or correction factors are listed below.

Table of Error Function or Correction Factor

Vehicle Type	Error Function or Correction Factor	
	1996	1997
1	0.455	0.582
2	0.704	0.723
3	2.414	2.481
4	0.850	1.529
5	1.788	2.493
6	0.971	0.748
7	1.387	1.092
8	0.375	0.219
9	1.198	1.164
10	1.333	0.728
11	1.064	1.049
12	0.525	0.692
13	0.143	0
15	0	0

The factors listed above are to be multiplied by the numbers from the automatic counter to obtain a "corrected" or "predicted" count. Appendix A list the raw data and the "predicted" data for one station (106P22) and date. The column headings in that appendix are defined as follows:

MAN = manual count,

AUTO = data from the automatic counter,

PREDIC = the count as predicted from the error function,

M-A = manual count minus the automatic count (the residuals),

SQ M-A = the square of M-A (square of the residuals),

M-P = manual count minus the predicted count (the residuals),

SQ M-P = the square of M-P (square of the residuals).

It is clear that applying the correction factor to the automatic counts yields a much more accurate count of the actual traffic stream (note the large decrease in the sum of the square of the residuals in Appendix A).

The following are some observations based upon an analysis of the correction factors listed above.

1. A correction factor greater than 1.0 means that class of vehicle is being under counted.
2. Motorcycles are being overestimated.
3. Automobiles are overestimated, while pickups are underestimated. It is probable that many pickups are being classed as automobiles.
4. Classes 4 and 5 are significantly under counted.
5. Type 9's are also under counted by 16 to 20 percent.

Figures 56 through 65 are plots showing the relationships between the automatic and predicted counts as a function of the manual counts for 1996 (Classes 2 through 11). The line on each of those figures is a line of equality and not a regression line.

LANE DISTRIBUTION FACTORS

As previously stated, one of the objectives of this study was to develop a set of updated lane distribution factors. These factors are to be used in equivalent axleload calculations. Lane distribution factors were developed for 4-lane, 6-lane, and 8-lane interstate highways. FHWA Card 4 data was used to provide the vehicle classification information for each location. The data for the

4-lane interstate highways was obtained from the 1995 - 1997 weigh in motion data which is utilized on an annual basis to calculate ESAL estimates. The 6-lane highway data was obtained from WIM data from the I-65 Bullitt County station. Data from 1994 and 1998 were utilized in the analysis. The data from the 8-lane interstate was obtained from the recently installed station on I-75 in Boone County. Twenty four hour data was only available for a very limited number of days, therefore these factors will need to be evaluated at a later date when additional data is available. Although some of the data used in the analysis was from WIM data, the analysis did not consider the distribution of weights across the lanes. Therefore, these factors are "presence" distribution factors only.

Data for each highway type was summarized to determine the number of vehicles which were present in each lane for each vehicle type for a 24 hour period. By limiting the analysis to 24-hour data, average daily traffic could be determined. The distribution factors presented in this report are defined as the ratio between the fraction of vehicles of a particular type traveling in a particular lane to the total number of vehicles of that vehicle type. These factors were determined for individual vehicle type, all vehicles combined, all trucks (vehicle types 5 - 13) and all cars (vehicle types 1 - 4). Relationships have been developed for 4 and 6-lane interstates between percent trucks, average daily traffic and distribution factors for all vehicles, all trucks and all cars. Due to the limited amount of data for 8-lane interstates, constant values are given for each lane. These relationships are each in the following form.

$$\text{Lane distribution Factor} = A + B*(ADT) + C * (\text{Percent Trucks})$$

where A,B, and C are regression coefficients.

Again, it should be noted that these factors only account for vehicle "presence" and do not account for the distribution of vehicle weights across the lanes. The results of this analysis are given in the following table. Figures 66 through 68 show the relationship of lane distribution factor and ADT (Figure a.) and lane distribution factor and percent trucks (Figure b) for 4-lane interstates. Figures 69 through 71 provide the same information for 6-lane interstates.

“Presence” Lane Distribution Factors

Roadway Type	Regression Coefficients		
	A	B	C
4-lane Interstate All Vehicle Types Lane 1 (outside lane)	0.81161	-4.2225e-6	0.0014378
4-lane Interstate, All Trucks Lane 1 (outside lane)	0.89081	-2.31798e-6	0.0016575
4-lane Interstate, All Cars Lane 1 (outside lane)	0.84538	-5.21969e-6	-0.0008147
6-lane Interstate, All Vehicle Types Lane 1 (outside lane)	0.32722	-1.68725e-6	0.002998
Lane 2 (middle lane)	0.577056	-1.39696e-6	-0.001037
6-lane Interstate, All Trucks Lane 1 (outside lane)	0.57444	4.56616e-7	-0.000328
Lane 2 (middle lane)	0.333282	1.34619e-7	0.001381
6-lane Interstate, All Cars Lane 1 (outside lane)	0.36276	-2.49177e-6	-0.00040
Lane 2 (middle lane)	0.60244	-1.85196e-6	0.0003147
8-lane Interstate, All Vehicle Types Lane 1 (outside lane)		0.27703	
Lane 2		0.27930	
Lane 3		0.31298	
Lane 4 (inside lane)		0.13700	
8-lane Interstate, All Trucks Lane 1 (outside lane)		0.28551	
Lane 2		0.43573	
Lane 3		0.23968	
Lane 4 (inside lane)		0.03901	
8-lane Interstate, All Cars Lane 1 (outside lane)		0.275088	
Lane 2		0.228048	
Lane 3		0.331196	
Lane 4 (inside lane)		0.165668	

SUMMARY AND CONCLUSIONS

1. Results of the survey indicate that most states do not adjust vehicle classification counts for seasonal variation.
2. Vehicle classification counts vary by month and/or season of the year. These data need to be adjusted to account for this variation. Because of the difficulty in obtain monthly data, adjusting the factors by season of the year appears to describe the annual variation in traffic to a sufficient degree of accuracy. Therefore, it is recommended that seasonal factors be calculated to adjust all short-term vehicle classification counts.
3. There is a large seasonal variation in automobiles and pick-up trucks, but larger vehicle types (Types 5 through 13) have much less seasonal variation.
4. Automobile volumes have less variation from one day of the week to the next while combination 5-axle trucks (Type 9) have a large variation between week days and weekends.
5. The Kentucky Transportation Cabinet has not collected sufficient vehicle classification data at this time to fully develop ADT factors for urban highway facilities. Further development will be done under a separate research study (KHSPR-98-182).
6. Hourly traffic factors are important in calculating user delay cost when making life-cycle costs analyses. These factors are used in calculating queue lengths. As generally known, there is a large variation in vehicles by hour of the day. There are generally two peaks per day for automobiles and all vehicle types combined while there appears to be only one peak for Type 9 vehicles.
7. The automatic classification equipment being used in 1996 and 1997 overestimated automobiles and underestimated pickup trucks and semi-trailers, although the total ADT was reasonably accurate. It is recommended that a correction factor similar to the ones developed in this study be applied to automatic counters, after calibrating each individual machine with a visual count.

8. In "presence" lane distribution factors, the regression coefficients for average daily traffic and percent trucks are quite small, indicating that lane distributions of traffic do not change to a large degree with increasing total traffic volume or increasing truck volume. However, there is a stronger correlation between truck volume and lane distribution than between total volume and lane distribution.

REFERENCES

1. Pigman, J. G., Allen, D. L., Harison, J., Tollner, N., and Cain, D. H. *Equivalent Single Axle-load Computer Program Enhancements*. Research Report KTC-95-7, Kentucky Transportation Center, University of Kentucky, Lexington, KY., 1995.
2. US. Department of Transportation, Federal Highway Administration. *Traffic Monitoring Guide, Third Edition*. Washington, D.C., 1995.
3. Weinblatt, H. Using Seasonal and Day-of-Week Factors to Improve Estimates of Truck VMT. *Transportation Research Board Paper 960531*, Washington, D.C., 1996.
4. Deacon, J. A., Pigman, J. P., and Mayes, J. G., *Estimation of Equivalent Axleloads*, Research Report UKTRP-85-30, Kentucky Transportation Center, University of Kentucky, Lexington, Kentucky, December 1985.
5. American Society for Testing and Materials. *Standard Practice for Highway-Monitoring*. ASTM E 1442-92a, Philadelphia, PA. 1993.

Table 1. Percentage of unclassified vehicles and their treatment

Percent tolerance	Treatment approach				
	Ignore	Reallocate-- Not specified	Reallocate-- Passenger cars	Reallocate-- Class 15	Ignore or Reallocate
0	1				
<10	2	2			
10	10	3	3	2	2
10>	2				

Table 2. Monthly ADT Factors for Rural Interstates and Parkways

		ADT FACTOR, VEHICLE TYPE : 1, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.229	.316	.480	.803	1.374	1.653	2.807	2.155	1.233	.971	.455	.313
MON		.449	.302	.287	.530	1.016	1.309	1.675	1.677	1.303	.647	.434	1.315
TUE		.476	.520	.388	.406	.929	1.337	1.522	1.087	.757	.712	.622	1.564
WED		.449	.642	.349	.512	1.150	1.482	2.023	1.338	.969	.798	.648	1.700
THU		.582	.426	.411	.756	1.033	1.260	1.569	1.395	1.036	.820	.599	1.174
FRI		.499	.650	.390	.685	1.544	1.422	2.722	1.861	1.486	1.121	.575	1.210
SAT		.401	.266	.477	.708	1.521	1.681	2.695	1.793	1.420	.798	.335	.463
AVRG		.441	.446	.397	.628	1.224	1.449	2.145	1.615	1.172	.838	.524	1.105
		ADT FACTOR, VEHICLE TYPE : 2, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.734	.815	.975	1.113	1.155	1.323	1.307	1.433	1.229	1.252	1.261	.910
MON		.651	.691	.792	.894	.970	1.012	1.142	1.069	1.011	.940	.900	.897
TUE		.566	.631	.750	.800	.818	.921	1.042	.936	.881	.840	.885	.841
WED		.612	.680	.731	.830	.845	.959	1.036	.965	.867	.868	1.038	.898
THU		.632	.655	.868	.939	.973	1.076	1.173	1.082	.933	1.017	1.041	.987
FRI		.764	.815	1.165	1.219	1.283	1.385	1.493	1.440	1.309	1.345	1.194	1.079
SAT		.767	.783	1.005	1.066	1.138	1.293	1.394	1.353	1.217	1.189	1.193	.934
AVRG		.675	.724	.898	.980	1.026	1.138	1.227	1.183	1.064	1.065	1.073	.935
		ADT FACTOR, VEHICLE TYPE : 3, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.651	.706	.922	1.102	1.000	1.142	1.113	1.154	.967	.997	.926	.658
MON		.760	.828	.921	1.053	1.053	1.172	1.094	1.087	.995	1.007	.859	.893
TUE		.706	.740	.889	.974	.950	1.017	1.083	1.002	.952	.932	.878	.773
WED		.747	.775	.868	1.043	.942	1.036	1.038	1.053	.922	.948	1.022	.830
THU		.730	.756	.984	1.074	1.092	1.146	1.168	1.169	.989	1.067	.921	.906
FRI		.797	.890	1.212	1.348	1.318	1.417	1.514	1.418	1.235	1.282	1.060	.907
SAT		.714	.818	1.032	1.155	1.086	1.240	1.330	1.242	1.050	1.052	.954	.707
AVRG		.729	.788	.976	1.107	1.063	1.167	1.191	1.161	1.016	1.041	.946	.811

Note: When a classification count is made on a particular day of the week and month of the year, the total number of vehicles in a particular class is divided by the factor in this table for that day of the week and month of the year (for that class) to obtain the average annual number of vehicles in that vehicle class per day.

Example: A count was taken on a Wednesday in July. There were 7,000 Type 2 vehicles (automobiles) counted for that 24-hour period. To get the average annual number of Type 2 vehicles per day for that site, divide 7,000 by the factor in this table for a Wednesday in July. $[7,000 / 1.036 = 6,757$ average annual number of Type 2s per day]

Table 2. Monthly ADT Factors for Rural Interstates and Parkways

		ADT FACTOR, VEHICLE TYPE : 4, RURAL INTERSTATES & PARKWAYS											
		FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
SUN	.369	.615	.812	.807	.642	.693	.616	.645	.601	.808	.618	.560	
MON	.929	.909	.962	1.143	.877	1.016	.946	.989	.798	1.007	1.059	.911	
TUE	.920	1.110	1.090	1.270	1.132	.997	1.067	1.176	1.045	1.167	1.197	1.000	
WED	.941	1.041	1.031	1.432	1.110	1.051	1.047	1.264	1.122	1.199	1.056	.988	
THU	.898	.955	1.168	1.417	1.284	1.202	1.251	1.268	1.138	1.310	.947	1.116	
FRI	.918	1.009	1.397	1.470	1.321	1.249	1.258	1.262	1.201	1.507	1.046	1.073	
SAT	.527	.760	.736	.934	.850	.878	.807	.892	.805	1.107	.760	.529	
AVRG	.786	.914	1.028	1.210	1.031	1.012	.999	1.071	.959	1.158	.955	.882	
		ADT FACTOR, VEHICLE TYPE : 5, RURAL INTERSTATES & PARKWAYS											
		FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
SUN	.426	.498	.586	.657	.638	.662	.713	.743	.651	.678	.576	.416	
MON	.943	.951	1.033	1.237	1.066	1.186	.989	1.127	.993	1.197	.993	.929	
TUE	.923	.947	1.076	1.236	1.159	1.198	1.215	1.218	1.110	1.170	1.095	.930	
WED	.971	.907	1.066	1.165	1.134	1.201	1.138	1.151	1.099	1.155	1.176	.977	
THU	.944	.884	1.169	1.323	1.245	1.337	1.275	1.243	1.196	1.281	.973	1.059	
FRI	.981	.966	1.190	1.288	1.291	1.392	1.395	1.409	1.239	1.372	1.077	.937	
SAT	.640	.726	.771	.839	.751	.855	.869	.850	.764	.850	.752	.538	
AVRG	.833	.840	.985	1.106	1.041	1.119	1.085	1.106	1.007	1.101	.949	.827	
		ADT FACTOR, VEHICLE TYPE : 6, RURAL INTERSTATES & PARKWAYS											
		FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
SUN	.375	.461	.387	.443	.492	.582	.442	.610	.453	.526	.477	.377	
MON	1.128	.996	.931	.987	1.120	1.294	.936	1.228	1.039	1.300	1.199	1.045	
TUE	1.158	.978	.940	.924	1.218	1.201	1.207	1.399	1.178	1.242	1.310	1.137	
WED	1.126	1.059	.913	.991	1.340	1.229	1.200	1.370	1.238	1.239	1.267	1.115	
THU	1.033	1.030	.987	1.016	1.340	1.359	1.132	1.134	1.410	1.252	1.078	1.179	
FRI	1.030	.932	.966	1.085	1.405	1.367	1.386	1.429	1.249	1.366	1.215	1.068	
SAT	.618	.693	.596	.595	.898	.860	.754	.791	.821	.831	.653	.567	
AVRG	.924	.879	.817	.863	1.116	1.128	1.008	1.137	1.055	1.108	1.029	.927	

Note: When a classification count is made on a particular day of the week and month of the year, the total number of vehicles in a particular class is divided by the factor in this table for that day of the week and month of the year (for that class) to obtain the average annual number of vehicles in that vehicle class per day.

Example: A count was taken on a Wednesday in July. There were 1,100 Type 5 vehicles counted for that 24-hour period. To get the average annual number of Type 5 vehicles per day for that site, divide 1,100 by the factor in this table for a Wednesday in July. [1,100 / 1.138 = 967 average annual number of Type 5s per day]

Table 2. Monthly ADT Factors for Rural Interstates and Parkways

		ADT FACTOR, VEHICLE TYPE : 7, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.146	.284	.305	.213	.360	.488	.325	.299	.220	.244	.249	.201	
MON	.956	1.144	1.289	1.183	1.272	1.191	.831	1.169	1.042	1.167	1.257	1.329	
TUE	.946	1.055	.989	1.176	1.434	1.390	1.159	1.376	1.106	1.332	1.403	1.385	
WED	1.069	.979	.996	1.224	1.302	1.462	1.268	.999	1.064	1.246	1.676	1.472	
THU	1.085	.812	1.050	1.534	1.480	1.464	1.242	1.148	1.285	1.340	1.217	1.236	
FRI	1.027	.737	.931	1.204	1.310	1.737	1.713	1.756	1.187	1.349	1.089	1.313	
SAT	.396	.561	.336	.476	.536	.749	1.037	.784	.527	.608	.503	.404	
AVRG	.804	.796	.842	1.001	1.099	1.212	1.082	1.076	.919	1.041	1.056	1.049	
		ADT FACTOR, VEHICLE TYPE : 8, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.477	.560	.625	.812	.718	.758	.759	.883	.688	.761	.664	.516	
MON	.812	.858	.997	1.289	1.020	1.093	.960	1.107	1.064	1.182	1.015	.930	
TUE	.893	.995	1.079	1.383	1.198	1.222	1.164	1.221	1.140	1.284	1.261	1.050	
WED	.956	.974	1.025	1.459	1.221	1.352	1.115	1.173	1.227	1.162	1.205	1.191	
THU	.885	.872	1.035	1.534	1.285	1.267	1.215	1.224	1.271	1.334	.971	1.180	
FRI	.805	.810	1.018	1.375	1.186	1.212	1.233	1.214	1.187	1.241	.966	.928	
SAT	.441	.558	.624	.849	.774	.810	.805	.773	.715	.758	.597	.501	
AVRG	.753	.804	.915	1.243	1.057	1.102	1.036	1.085	1.042	1.103	.954	.899	
		ADT FACTOR, VEHICLE TYPE : 9, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.601	.718	.607	.563	.554	.662	.535	.656	.556	.671	.675	.546	
MON	1.050	.983	.991	.992	.886	.995	.826	.988	.923	1.089	1.016	.944	
TUE	1.267	1.188	1.284	1.278	1.202	1.253	1.122	1.274	1.232	1.356	1.381	1.168	
WED	1.310	1.278	1.299	1.345	1.268	1.309	1.219	1.238	1.266	1.345	1.325	1.282	
THU	1.234	1.201	1.261	1.297	1.267	1.274	1.198	1.284	1.271	1.359	1.109	1.204	
FRI	1.044	1.014	1.033	1.037	1.011	1.070	.976	1.125	1.045	1.105	.917	.904	
SAT	.583	.641	.587	.554	.595	.609	.623	.639	.609	.703	.568	.560	
AVRG	1.013	1.003	1.009	1.009	.969	1.024	.928	1.029	.986	1.090	.999	.944	

Note: When a classification count is made on a particular day of the week and month of the year, the total number of vehicles in a particular class is divided by the factor in this table for that day of the week and month of the year (for that class) to obtain the average annual number of vehicles in that vehicle class per day.

Example: A count was taken on a Wednesday in July. There were 1,100 Type 9 vehicles counted for that 24-hour period. To get the average annual number of Type 9 vehicles per day for that site, divide 1,100 by the factor in this table for a Wednesday in July. [1,100 / 1.219 = 902 average annual number of Type 9s per day]

Table 2. Monthly ADT Factors for Rural Interstates and Parkways

		ADT FACTOR, VEHICLE TYPE : 10, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.362	.439	.256	.270	.231	.225	.274	.320	.196	.302	.229	.205	
MON	1.088	1.185	1.107	1.043	1.139	1.261	.822	1.221	.847	1.029	.892	.816	
TUE	1.522	1.630	1.207	1.228	1.455	1.547	1.570	1.471	1.080	1.179	1.151	.935	
WED	1.474	1.588	1.210	1.296	1.530	1.486	1.403	1.215	1.514	1.255	1.177	.990	
THU	1.217	1.154	1.391	1.397	1.540	1.438	1.592	1.482	1.564	1.270	.970	.977	
FRI	1.186	1.201	1.203	1.137	1.349	1.478	1.353	1.135	1.264	1.176	.964	.955	
SAT	.486	.621	.363	.427	.505	.525	.569	.391	.485	.502	.473	.336	
AVRG	1.048	1.117	.962	.971	1.107	1.137	1.084	1.034	.993	.959	.837	.745	
		ADT FACTOR, VEHICLE TYPE : 11, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.309	.433	.315	.252	.288	.314	.332	.387	.338	.379	.370	.298	
MON	.778	.885	.849	.867	.788	.907	.695	.902	.797	1.030	.954	.845	
TUE	1.091	1.172	1.286	1.274	1.254	1.182	1.109	1.508	1.203	1.555	1.466	1.198	
WED	1.203	1.157	1.311	1.173	1.286	1.285	1.285	1.484	1.420	1.548	1.569	1.359	
THU	1.139	1.066	1.333	1.273	1.368	1.305	1.413	1.447	1.489	1.472	1.348	1.407	
FRI	1.071	.973	1.298	1.179	1.148	1.228	1.444	1.314	1.231	1.416	1.113	1.152	
SAT	.541	.708	.626	.563	.595	.630	.664	.675	.673	.756	.626	.554	
AVRG	.876	.913	1.003	.940	.961	.979	.992	1.102	1.022	1.165	1.064	.973	
		ADT FACTOR, VEHICLE TYPE : 12, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.449	.472	.450	.469	.398	.445	.360	.484	.369	.573	.609	.729	
MON	.663	.776	.747	.883	.656	.801	.699	.864	.773	.971	.947	.899	
TUE	1.001	1.055	1.242	1.168	1.047	1.070	1.076	1.178	1.183	1.613	1.478	1.228	
WED	1.081	1.155	1.254	1.109	1.103	1.215	1.188	1.093	1.332	1.570	1.435	1.391	
THU	1.015	.972	1.283	1.299	1.333	1.186	1.523	1.340	1.455	1.608	1.406	1.381	
FRI	.971	.936	1.083	1.146	1.069	1.098	1.281	1.309	1.355	1.261	1.035	1.019	
SAT	.627	.944	.942	.769	.641	.777	.845	.847	.913	1.042	.826	.707	
AVRG	.829	.901	1.000	.977	.892	.942	.996	1.016	1.054	1.234	1.105	1.051	

Note: When a classification count is made on a particular day of the week and month of the year, the total number of vehicles in a particular class is divided by the factor in this table for that day of the week and month of the year (for that class) to obtain the average annual number of vehicles in that vehicle class per day.

Example: A count was taken on a Wednesday in July. There were 100 Type 11 vehicles counted for that 24-hour period. To get the average annual number of Type 11 vehicles per day for that site, divide 100 by the factor in this table for a Wednesday in July. $[100 / 1.285 = 78 \text{ average annual number of Type 11s per day}]$

Table 2. Monthly ADT Factors for Rural Interstates and Parkways

		ADT FACTOR, VEHICLE TYPE : 13, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.270	.471	.049	.159	.547	.731	.446	.787	.521	.303	.394	.113
MON		.666	.643	.626	1.075	1.279	2.201	1.103	1.123	1.029	.801	.544	.305
TUE		1.160	.889	1.234	1.169	1.889	2.578	2.471	2.034	1.732	1.115	.910	.744
WED		.798	1.151	.705	1.031	1.155	2.762	2.882	1.743	1.759	.770	1.003	.557
THU		.541	1.195	.592	.881	1.146	2.220	1.917	1.327	2.025	1.179	.896	.439
FRI		.463	1.011	.513	.829	.875	2.237	2.000	1.478	1.421	.813	.836	.292
SAT		.429	.469	.232	.187	.448	.458	1.417	.831	.498	.470	.525	.196
AVRG		.618	.833	.564	.762	1.049	1.884	1.748	1.332	1.284	.779	.730	.378
		ADT FACTOR, VEHICLE TYPE : 15, RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		1.028	1.015	1.015	.948	.997	1.021	.948	.978	.806	1.002	.896	.785
MON		1.162	1.049	.920	.897	1.090	.987	.997	.860	.831	.918	.780	.872
TUE		1.102	1.075	.895	.851	.924	.977	.979	.925	.770	1.003	.848	.886
WED		1.088	1.047	1.028	.926	.960	.953	.870	1.084	.819	1.006	.949	.886
THU		1.081	1.040	1.095	.979	1.058	.918	1.003	1.060	.882	1.165	.826	.855
FRI		1.446	1.242	1.202	1.374	1.319	1.077	1.111	1.143	1.051	1.362	.904	1.028
SAT		1.187	1.129	1.078	.985	1.030	1.041	.997	.994	.807	1.156	.855	.873
AVRG		1.156	1.085	1.033	.995	1.054	.996	.986	1.006	.852	1.087	.865	.884
		ADT FACTOR, ALL VEHICLE TYPES (VT 1-15), RURAL INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.733	.794	.908	1.010	1.018	1.155	1.111	1.216	1.022	1.091	1.063	.790
MON		.782	.796	.852	.941	.986	1.030	1.069	1.042	.981	.960	.903	.897
TUE		.753	.788	.867	.906	.917	1.002	1.057	1.008	.940	.942	.952	.921
WED		.792	.819	.867	.928	.939	1.035	1.020	1.041	.954	.960	1.083	.936
THU		.788	.788	.963	1.010	1.046	1.110	1.169	1.125	1.016	1.080	1.005	1.000
FRI		.896	.900	1.148	1.218	1.256	1.292	1.375	1.360	1.251	1.291	1.094	1.077
SAT		.789	.814	.944	.999	1.023	1.156	1.212	1.183	1.060	1.079	1.026	.827
AVRG		.790	.814	.935	1.002	1.026	1.111	1.145	1.139	1.032	1.058	1.018	.921

Note: When a classification count is made on a particular day of the week and month of the year, the total number of vehicles in a particular class is divided by the factor in this table for that day of the week and month of the year (for that class) to obtain the average annual number of vehicles in that vehicle class per day.

Example: A count was taken on a Wednesday in July. There were 50 Type 13 vehicles counted for that 24-hour period. To get the average annual number of Type 13 vehicles per day for that site, divide 50 by the factor in this table for a Wednesday in July. [50 / 2.882 = 17 average annual number of Type 13s per day]

Table 3. Monthly ADT Factors for Rural Non-Interstates and Parkways

	ADT FACTOR, VEHICLE TYPE 1, RURAL NON-INTERSTATES & PARKWAYS											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.163	.510	.691	1.353	1.905	2.562	2.166	1.953	1.313	.942	.652	.121
MON	.494	.870	.632	.719	1.311	1.860	1.490	1.065	1.087	.779	.567	.735
TUE	.508	.706	.743	.936	1.205	1.436	1.206	1.369	1.070	.903	.531	.607
WED	.462	.719	.759	.850	1.031	1.270	1.026	.910	1.125	.779	.576	.536
THU	.434	1.132	.958	.932	1.229	1.024	.807	.968	1.270	.900	.557	.709
FRI	.514	1.107	.980	.744	1.408	1.335	1.161	.930	1.350	1.299	.710	.617
SAT	.293	.353	.948	.702	1.723	1.665	2.179	1.764	1.561	.591	.288	.229
AVRG	.410	.771	.816	.891	1.402	1.593	1.434	1.280	1.254	.885	.554	.508
ADT FACTOR, VEHICLE TYPE 2, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.696	.879	.897	1.087	1.154	1.147	1.102	1.091	1.057	.936	.772	.690
MON	.819	.906	.971	1.072	1.104	1.090	1.036	1.064	.941	.851	.809	.722
TUE	.811	.901	.980	1.078	1.089	1.093	1.036	1.046	.983	.814	.734	.764
WED	.805	.912	.896	1.047	1.071	1.069	1.045	1.065	.941	.821	.738	.786
THU	.844	.881	1.004	1.128	1.133	1.107	1.144	1.079	.997	.915	.799	.836
FRI	.920	.969	1.154	1.261	1.330	1.287	1.302	1.232	1.218	1.096	.965	.922
SAT	.866	.917	1.022	1.200	1.254	1.251	1.228	1.173	1.126	.956	.839	.787
AVRG	.823	.909	.989	1.125	1.162	1.149	1.128	1.107	1.038	.913	.808	.787
ADT FACTOR, VEHICLE TYPE 3, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.547	.674	.590	.680	.741	.832	.828	.921	.909	.907	.779	.654
MON	.903	.873	.921	1.042	1.023	1.115	1.006	1.242	1.095	1.094	1.067	.926
TUE	.845	.844	.916	1.009	1.009	1.097	1.101	1.196	1.173	1.043	.963	.945
WED	.854	.843	.856	.965	.982	1.019	1.091	1.195	1.120	1.060	.984	.996
THU	.880	.838	.958	1.015	1.054	1.070	1.159	1.201	1.179	1.149	.991	1.039
FRI	.917	.894	1.062	1.129	1.162	1.187	1.259	1.294	1.336	1.321	1.191	1.108
SAT	.777	.758	.893	.953	.990	1.027	1.124	1.117	1.162	1.119	.976	.860
AVRG	.817	.818	.885	.971	.995	1.050	1.081	1.167	1.139	1.099	.993	.933

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.

Table 3. Monthly ADT Factors for Rural Non-Interstates and Parkways

ADT FACTOR, VEHICLE TYPE 4, RURAL, NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.185	.516	.184	.266	.305	.341	.363	.325	.496	.497	.290	.276
MON	1.152	.771	1.095	1.284	1.344	.808	.761	1.186	1.218	1.591	1.764	1.274
TUE	1.031	1.124	1.167	1.429	1.456	.825	.843	1.089	1.595	1.458	1.666	1.225
WED	1.146	1.205	1.118	1.246	1.674	.896	.907	1.187	1.703	1.592	1.867	1.215
THU	1.178	1.169	1.253	1.381	1.858	1.082	.948	1.272	1.879	1.806	1.694	1.329
FRI	.992	.636	.895	1.188	1.588	.746	.832	1.152	1.719	1.531	1.513	.922
SAT	.312	.239	.302	.318	.492	.370	.470	.534	.727	.465	.559	.339
AVRG	.856	.808	.859	1.016	1.245	.724	.732	.964	1.334	1.209	1.336	.940
ADT FACTOR, VEHICLE TYPE 5, RURAL, NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.225	.420	.206	.224	.247	.352	.335	.349	.397	.355	.318	.237
MON	1.000	1.038	.990	1.271	1.181	1.384	1.058	1.351	1.151	1.179	1.134	.993
TUE	.942	1.040	1.121	1.317	1.422	1.432	1.315	1.419	1.401	1.271	1.208	1.131
WED	.953	1.126	1.088	1.318	1.469	1.353	1.313	1.385	1.400	1.198	1.255	1.075
THU	.979	.988	1.120	1.334	1.485	1.363	1.339	1.390	1.323	1.358	1.034	1.079
FRI	1.082	.776	1.167	1.298	1.528	1.358	1.366	1.394	1.459	1.392	1.285	1.125
SAT	.463	.353	.418	.529	.610	.607	.630	.618	.664	.645	.568	.410
AVRG	.806	.820	.873	1.042	1.135	1.121	1.051	1.129	1.114	1.057	.972	.864
ADT FACTOR, VEHICLE TYPE 6, RURAL, NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.276	.583	.286	.212	.180	.254	.251	.324	.283	.349	.335	.202
MON	1.077	1.026	.985	1.219	1.295	1.367	.991	1.450	1.238	1.172	.991	1.092
TUE	.833	.943	1.304	1.478	1.605	1.458	1.422	1.590	1.386	1.431	1.228	.851
WED	.894	1.066	1.064	1.278	1.488	1.812	1.466	1.683	1.596	1.318	1.183	1.062
THU	.757	1.079	1.213	1.182	1.582	1.535	1.406	1.645	1.455	1.193	1.051	.989
FRI	.886	.878	1.181	1.076	1.438	1.573	1.525	1.461	1.455	1.187	1.174	.704
SAT	.464	.338	.494	.350	.464	.422	.396	.445	.611	.345	.763	.326
AVRG	.741	.845	.932	.971	1.150	1.203	1.065	1.220	1.146	.999	.961	.758

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.

Table 3. Monthly ADT Factors for Rural Non-Interstates and Parkways

ADT FACTOR, VEHICLE TYPE 7, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.119	.425	.181	.133	.181	.013	.093	.016	.000	.032	.000	.008
MON	1.441	.810	1.143	1.235	1.179	.705	.588	2.084	.664	1.025	.978	1.551
TUE	1.263	.696	1.545	1.428	1.374	1.112	1.139	1.590	1.086	1.148	1.185	1.177
WED	2.905	.931	1.326	1.144	1.377	1.180	1.233	2.624	1.157	1.612	1.523	.964
THU	1.132	.694	1.260	1.467	.887	1.295	.928	3.633	1.134	1.252	1.815	.679
FRI	1.661	.519	1.158	.891	1.039	1.458	.734	1.974	.890	1.383	4.189	.442
SAT	.857	.076	.132	.209	.135	.275	.434	.283	.444	.061	2.002	.172
AVRG	1.340	.593	.964	.929	.882	.862	.735	1.743	.768	.930	1.670	.713
ADT FACTOR, VEHICLE TYPE 8, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.236	.436	.381	.569	.735	.824	1.646	.938	.779	.645	.323	.290
MON	.736	.835	.825	1.011	1.100	1.217	1.671	1.114	1.099	1.126	1.058	.952
TUE	.736	.897	1.058	1.195	1.151	1.415	1.710	1.272	1.249	1.243	1.347	1.086
WED	.771	.813	.845	1.037	1.198	1.283	1.469	1.269	1.188	1.170	1.310	.979
THU	.703	.734	.816	1.091	1.108	1.386	1.347	1.197	1.122	1.213	1.129	.926
FRI	.754	.601	1.057	1.090	1.351	1.417	1.768	1.241	1.469	1.301	1.285	.911
SAT	.364	.338	.567	.685	.900	.977	1.417	1.003	.880	.794	.502	.278
AVRG	.614	.665	.793	.954	1.078	1.217	1.576	1.148	1.112	1.070	.993	.775
ADT FACTOR, VEHICLE TYPE 9, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.317	.539	.328	.356	.333	.445	.375	.438	.332	.339	.412	.316
MON	1.000	.989	1.201	1.309	1.259	1.560	1.157	1.288	1.082	.972	1.210	1.090
TUE	.998	1.083	1.248	1.415	1.523	1.565	1.403	1.230	1.296	1.118	1.291	1.193
WED	.988	1.042	1.225	1.405	1.464	1.569	1.472	1.259	1.356	1.300	1.374	1.184
THU	1.029	.940	1.135	1.445	1.493	1.595	1.441	1.253	1.276	1.299	1.112	1.139
FRI	1.024	.765	1.140	1.182	1.535	1.530	1.370	1.289	1.269	1.158	.984	.985
SAT	.342	.378	.412	.472	.564	.571	.518	.468	.516	.391	.391	.381
AVRG	.814	.819	.956	1.084	1.167	1.262	1.105	1.032	1.018	.940	.968	.898

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.

Table 3. Monthly ADT Factors for Rural Non-Interstates and Parkways

		ADT FACTOR, VEHICLE TYPE 10, RURAL NON-INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.118	.484	.396	.272	.207	.540	.434	.474	.101	.062	.283	.102
MON		.775	1.234	1.539	1.601	1.131	1.702	1.205	1.573	.833	1.354	.908	1.193
TUE		1.190	1.016	1.497	1.676	1.421	1.592	1.887	1.242	1.325	1.348	.765	.937
WED		1.190	1.174	2.302	1.186	1.147	1.985	1.623	1.018	.962	1.232	.759	1.214
THU		.993	.982	2.034	1.694	1.144	1.854	1.933	1.035	.931	.976	.885	1.045
FRI		.848	1.030	1.574	1.174	.970	1.727	1.642	.775	.774	.871	.846	.782
SAT		.058	.382	.886	.206	.719	.585	.644	.351	.245	.367	.144	.137
AVRG		.739	.900	1.461	1.116	.963	1.426	1.338	.924	.739	.887	.656	.773
		ADT FACTOR, VEHICLE TYPE 11, RURAL NON-INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.066	.247	.000	.000	.106	.066	.000	.000	.000	.066	.000	.000
MON		.780	.783	.331	.394	.510	.551	.516	.808	.918	1.027	1.451	1.304
TUE		.749	1.424	.827	.586	1.117	1.061	.847	1.523	1.658	1.381	2.722	1.864
WED		.765	1.033	.844	.581	.923	.996	.930	1.601	1.655	1.720	2.221	2.518
THU		1.300	.662	.811	.651	1.267	1.030	.827	1.801	1.981	1.802	1.845	2.706
FRI		.757	.435	1.054	.762	1.480	1.314	1.361	1.431	2.299	1.625	2.213	1.995
SAT		.627	.271	.496	.385	.470	.607	.681	.640	1.216	.885	.996	1.096
AVRG		.721	.694	.623	.480	.839	.804	.737	1.115	1.390	1.215	1.635	1.640
		ADT FACTOR, VEHICLE TYPE 12, RURAL NON-INTERSTATES & PARKWAYS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		.000	.000	.000	.000	.000	.000	.000	.084	.000	.000	.000	.000
MON		.106	.000	.372	.000	.000	.000	.000	.000	.372	.422	.211	.000
TUE		.317	3.345	.297	.000	.508	.743	.000	.000	.477	.583	.141	.000
WED		2.331	.844	2.926	2.703	2.331	1.696	2.225	2.863	2.703	2.331	2.926	3.818
THU		.106	1.592	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
FRI		1.959	.844	2.703	2.628	2.703	1.166	1.823	2.120	2.703	.844	1.588	1.228
SAT		.764	.106	.000	.297	.000	.000	.000	.106	.000	.000	.000	.000
AVRG		.797	.962	.900	.804	.792	.515	.578	.739	.893	.597	.695	.721

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.

Table 3. Monthly ADT Factors for Rural
Non-Interstates and Parkways

ADT FACTOR, VEHICLE TYPE 13, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.049	.085	.178	.212	.254	.832	1.052	.342	.012	.049	.000	.036
MON	.389	.498	.324	.457	.866	2.420	1.525	.019	.731	.389	.412	.583
TUE	.324	.162	.379	.650	.628	4.794	3.081	.051	.309	1.748	.082	.777
WED	1.044	.194	.360	1.002	1.017	2.512	2.461	.016	.878	1.432	.000	1.860
THU	.567	.898	.476	.707	.707	2.479	3.192	.119	1.441	.610	.102	.668
FRI	.551	.619	.292	.732	.426	1.776	.832	.067	.784	.796	1.062	.641
SAT	.206	.231	.259	.194	.384	.846	.849	.000	.211	.253	.000	.155
AVRG	.447	.384	.324	.565	.612	2.237	1.856	.088	.624	.754	.237	.674
ADT FACTOR, VEHICLE TYPE 15, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.867	.732	.631	.559	.526	.492	.552	.611	.756	1.102	1.400	1.650
MON	1.122	.946	.807	.743	.592	.597	.596	.720	1.030	1.466	1.847	2.084
TUE	1.025	1.079	.926	.665	.643	.607	.659	.710	1.012	1.468	1.955	1.894
WED	1.158	1.049	1.025	.740	.659	.593	.647	.695	.977	1.485	2.033	1.893
THU	1.034	1.062	.932	.720	.685	.653	.636	.715	.984	1.548	1.815	1.980
FRI	1.155	.956	.948	.917	.805	.668	.746	.825	1.071	1.618	1.945	1.889
SAT	.926	.773	.713	.614	.619	.527	.624	.679	.893	1.306	1.742	1.712
AVRG	1.041	.942	.855	.708	.647	.591	.637	.708	.961	1.427	1.820	1.872
ADT FACTOR, ALL VEHICLE TYPE, RURAL NON-INTERSTATES & PARKWAYS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	.639	.799	.768	.889	.943	.960	.930	.959	.957	.930	.862	.795
MON	.856	.906	.934	1.024	1.026	1.042	.956	1.068	1.004	1.011	1.061	.978
TUE	.828	.897	.963	1.020	1.036	1.049	1.007	1.053	1.055	.993	1.039	.992
WED	.835	.921	.901	.998	1.023	1.016	1.016	1.062	1.021	1.009	1.068	1.013
THU	.855	.887	.980	1.058	1.076	1.054	1.094	1.073	1.058	1.097	1.047	1.069
FRI	.931	.928	1.099	1.169	1.233	1.189	1.223	1.191	1.238	1.245	1.204	1.111
SAT	.791	.821	.915	1.023	1.077	1.071	1.084	1.052	1.076	1.023	1.002	.914
AVRG	.819	.880	.937	1.026	1.059	1.054	1.044	1.065	1.059	1.044	1.041	.982

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.

Table 4. Comparisons of AADT Estimates

Site Type	Number of Daily Counts	MAE by Estimate Type		
		Unfactored (%)	Sum of Factored Vehicle Classes (%)	Factored Sum (%)
Interstate 1	52	13.4	7.5	9.5
Interstate 2	27	14.6	10.2	10.6
Interstate 3	93	12.3	6.4	7.2
Non-Interstate 1	92	15.2	12.3	11.9
Non-Interstate 2	103	16.3	9.2	10.1
Non-Interstate 3	76	11.2	5.4	5.2
Non-Interstate 4	84	13.5	8.7	8.9

Table 5. Effect of Treatment of Unclassified Vehicles on AADT Estimates

Site Type	Treatment of Unclassified	MAE by Estimate Type		
		Unfactored (%)	Sum of Factored Vehicle Classes (%)	Factored Sum (%)
Interstate 1	*Excluded	12.8	7.3	9.1
	**Combined	13.4	7.4	9.3
Interstate 2	Excluded	14.9	9.9	10.4
	Combined	14.6	9.8	10.2
Interstate 3	Excluded	12.7	6.6	7.1
	Combined	12.3	6.8	7.5
Non-Interstate 1	Excluded	14.4	12.2	12.0
	Combined	15.2	11.9	11.8
Non-Interstate 2	Excluded	15.8	9.4	9.9
	Combined	16.3	8.9	10.1
Non-Interstate 3	Excluded	11.7	5.6	5.5
	Combined	11.2	5.2	5.0
Non-Interstate 4	Excluded	13.1	8.5	9.0
	Combined	13.5	8.7	9.1

Notes: * Excluded from Error Analysis
 ** Combined with other vehicles and included in error analysis

**Table 6. Predicted AADT from Monthly ADT Factors
Compared to Unfactored AADT**

Station	Date	Method	Mean	Standard Dev.	Coeff. Of Variation
ATR-23	April '95	Unfactored	26,497	3,967	15.0
		Factored	27,028	4,107	15.2
ATR-23	July '95	Unfactored	27,893	3,704	13.3
		Factored	24,962	3,817	15.3
ATR-47	January '95	Unfactored	10,200	1,686	13.3
		Factored	12,956	1,376	10.8
ATR-47	April '95	Unfactored	12,770	1,189	9.3
		Factored	12,882	1,036	8.0
ATR-47	July '95	Unfactored	15,180	2,125	14.0
		Factored	13,242	1,417	10.7
ATR-47	October '95	Unfactored	13,010	1,689	13.0
		Factored	12,510	1,179	9.4

Table 7. Winter ADT Factors
Rural Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.286	0.689	0.853	0.930	0.727	0.786	0.377	0.664
2	0.820	0.746	0.679	0.730	0.758	0.886	0.828	0.778
3	0.672	0.827	0.740	0.784	0.797	0.865	0.746	0.776
4	0.515	0.916	1.010	0.990	0.990	1.000	0.605	0.861
5	0.447	0.941	0.933	0.952	0.962	0.961	0.635	0.833
6	0.404	1.056	1.091	1.100	1.081	1.010	0.626	0.910
7	0.210	1.143	1.129	1.173	1.044	1.026	0.454	0.883
8	0.518	0.867	0.979	1.040	0.979	0.848	0.500	0.819
9	0.622	0.992	1.208	1.290	1.213	0.987	0.595	0.987
10	0.335	1.030	1.362	1.351	1.116	1.114	0.481	0.970
11	0.347	0.836	1.154	1.240	1.204	1.065	0.601	0.921
12	0.550	0.779	1.095	1.209	1.123	0.975	0.759	0.927
13	0.285	0.538	0.931	0.835	0.725	0.589	0.365	0.610
15	0.943	1.028	1.021	1.007	0.992	1.239	1.063	1.042
16*	0.772	0.825	0.821	0.849	0.859	0.958	0.810	0.842

* All Vehicle Types Combined

Note: When a classification count is made on a particular day of the week and season of the year, the total number of vehicles in a particular class is divided by the factor in this table for that day of the week and season of the year (for that class) to obtain the average annual number of vehicles in that vehicle class per day.

Example: A count was taken on a Wednesday in December, January, or February. There were 7,000 Type 2 vehicles (automobiles) counted for that 24-hour period. To get the average annual number of Type 2 vehicles per day for that site, divide 7,000 by the factor in this table for a Wednesday in December, January, or February (Winter).
 $[7,000 / 0.730 = 9,589 \text{ average annual number of Type 2s per day}]$

Table 8. Spring ADT Factors
Rural Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.886	0.611	0.574	0.670	0.733	0.873	0.902	0.750
2	1.081	0.885	0.789	0.802	0.927	1.222	1.070	0.968
3	1.008	1.009	0.938	0.951	1.050	1.293	1.091	1.049
4	0.754	0.994	1.164	1.191	1.290	1.396	0.840	1.090
5	0.627	1.112	1.157	1.122	1.246	1.256	0.787	1.044
6	0.441	1.013	1.027	1.081	1.114	1.152	0.696	0.932
7	0.293	1.248	1.200	1.174	1.355	1.148	0.449	0.981
8	0.718	1.102	1.220	1.235	1.285	1.193	0.749	1.072
9	0.575	0.956	1.255	1.304	1.275	1.027	0.579	0.996
10	0.252	1.096	1.297	1.345	1.443	1.230	0.432	1.013
11	0.285	0.835	1.271	1.257	1.325	1.208	0.595	0.968
12	0.439	0.762	1.152	1.155	1.305	1.099	0.784	0.956
13	0.252	0.993	1.431	0.964	0.873	0.739	0.289	0.792
15	0.987	0.969	0.890	0.971	1.044	1.298	1.031	1.027
16*	0.979	0.926	0.897	0.911	1.006	1.207	0.989	0.988

* All Vehicle Types Combined

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.

Table 9. Summer ADT Factors
Rural Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	2.205	1.554	1.315	1.614	1.408	2.002	2.056	1.736
2	1.354	1.074	0.966	0.987	1.110	1.439	1.347	1.183
3	1.136	1.118	1.034	1.042	1.161	1.450	1.271	1.173
4	0.651	0.984	1.080	1.121	1.240	1.256	0.859	1.027
5	0.706	1.101	1.210	1.163	1.285	1.399	0.858	1.103
6	0.545	1.153	1.269	1.266	1.208	1.394	0.802	1.091
7	0.371	1.064	1.308	1.243	1.285	1.735	0.857	1.123
8	0.800	1.053	1.202	1.213	1.235	1.220	0.796	1.074
9	0.618	0.936	1.216	1.255	1.252	1.057	0.624	0.994
10	0.273	1.101	1.529	1.368	1.504	1.322	0.495	1.085
11	0.344	0.835	1.266	1.351	1.388	1.329	0.656	1.024
12	0.430	0.788	1.108	1.165	1.350	1.229	0.823	0.985
13	0.055	1.476	2.361	2.462	1.821	1.905	0.902	1.655
15	0.982	0.948	0.960	0.969	0.994	1.110	1.011	0.996
16*	1.161	1.047	1.022	1.032	1.135	1.342	1.184	1.132

* All Vehicle Types Combined

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.

Table 10. Fall ADT Factors
Rural Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.886	0.795	0.697	0.805	0.818	1.061	0.851	0.845
2	1.247	0.950	0.869	0.924	0.997	1.283	1.200	1.067
3	0.963	0.954	0.921	0.964	0.992	1.192	1.019	1.001
4	0.676	0.955	1.136	1.126	1.132	1.251	0.891	1.024
5	0.635	1.061	1.125	1.143	1.150	1.229	0.789	1.019
6	0.485	1.179	1.243	1.248	1.247	1.277	0.768	1.064
7	0.238	1.155	1.280	1.329	1.281	1.208	0.546	1.005
8	0.704	1.087	1.228	1.198	1.192	1.131	0.690	1.033
9	0.634	1.009	1.323	1.312	1.246	1.022	0.627	1.025
10	0.242	0.923	1.137	1.315	1.268	1.135	0.487	0.930
11	0.362	0.927	1.408	1.512	1.436	1.253	0.685	1.084
12	0.517	0.897	1.425	1.446	1.490	1.217	0.927	1.131
13	0.406	0.791	1.252	1.177	1.367	1.023	0.498	0.931
15	0.901	0.843	0.874	0.925	0.958	1.106	0.939	0.935
16*	1.059	0.948	0.945	0.999	1.034	1.212	1.055	1.036

* All Vehicle Types Combined

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.

**Table 11. Winter ADT Factors
Rural Non-Interstates and Parkways**

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.265	0.700	0.607	0.572	0.758	0.746	0.292	0.563
2	0.755	0.816	0.825	0.834	0.854	0.937	0.857	0.840
3	0.625	0.901	0.878	0.898	0.919	0.973	0.798	0.856
4	0.326	1.066	1.127	1.189	1.225	0.850	0.297	0.868
5	0.294	1.010	1.038	1.051	1.015	0.994	0.409	0.830
6	0.354	1.065	0.876	1.007	0.942	0.849	0.376	0.781
7	0.184	1.267	1.045	1.600	0.835	0.874	0.368	0.882
8	0.321	0.841	0.906	0.854	0.788	0.755	0.327	0.685
9	0.391	1.026	1.091	1.071	1.036	0.925	0.367	0.844
10	0.235	1.067	1.048	1.193	1.007	0.887	0.192	0.804
11	0.157	0.956	1.346	1.439	1.556	1.062	0.665	1.026
12	0.106	1.831	1.831	2.331	0.849	1.344	0.435	1.149
13	0.057	0.490	0.421	1.033	0.711	0.604	0.197	0.502
15	1.083	1.384	1.333	1.367	1.359	1.333	1.137	1.285
16*	0.744	0.913	0.906	0.923	0.937	0.990	0.842	0.894

* All Vehicle Types Combined

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.

Table 12. Spring ADT Factors

Rural Non-Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	1.316	0.887	0.961	0.880	1.040	1.044	1.124	1.036
2	1.046	1.049	1.049	1.005	1.088	1.248	1.159	1.092
3	0.670	0.995	0.978	0.934	1.009	1.118	0.945	0.950
4	0.252	1.241	1.351	1.346	1.497	1.224	0.371	1.040
5	0.226	1.147	1.287	1.292	1.313	1.331	0.519	1.017
6	0.226	1.166	1.462	1.277	1.326	1.232	0.436	1.018
7	0.165	1.186	1.449	1.282	1.205	1.029	0.159	0.925
8	0.562	0.979	1.135	1.027	1.005	1.166	0.717	0.942
9	0.339	1.256	1.395	1.365	1.358	1.286	0.483	1.069
10	0.292	1.424	1.531	1.545	1.624	1.239	0.604	1.180
11	0.106	0.412	0.843	0.783	0.910	1.099	0.450	0.657
12		0.372	0.403	2.653		2.678	0.297	1.281
13	0.215	0.549	0.552	0.811	0.630	0.483	0.279	0.500
15	0.572	0.714	0.745	0.808	0.779	0.890	0.649	0.737
16*	0.867	0.995	1.006	0.974	1.038	1.167	1.005	1.007

*All Vehicle Types Combined

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.

Table 13. Summer ADT Factors
Rural Non-Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	2.227	1.472	1.337	1.069	0.933	1.142	1.869	1.436
2	1.113	1.063	1.058	1.060	1.110	1.274	1.217	1.128
3	0.860	1.121	1.131	1.102	1.143	1.247	1.089	1.099
4	0.343	0.918	0.919	0.997	1.101	0.910	0.458	0.807
5	0.345	1.264	1.389	1.350	1.364	1.373	0.718	1.115
6	0.276	1.269	1.490	1.654	1.529	1.520	0.421	1.165
7	0.041	1.126	1.280	1.679	1.952	1.389	0.331	1.113
8	1.136	1.334	1.466	1.340	1.310	1.475	1.132	1.314
9	0.419	1.335	1.399	1.433	1.430	1.396	0.519	1.133
10	0.483	1.493	1.574	1.542	1.607	1.381	0.527	1.229
11	0.066	0.625	1.144	1.176	1.219	1.369	0.643	0.892
12	0.084		0.743	2.261		1.703	0.160	0.990
13	0.742	1.321	2.642	1.663	1.930	0.892	0.848	1.434
15	0.552	0.638	0.659	0.645	0.668	0.746	0.610	0.645
16*	0.950	1.022	1.036	1.031	1.074	1.201	1.069	1.054

* All Vehicle Types Combined

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.

Table 14. Fall ADT Factors
Rural Non-Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.969	0.811	0.835	0.827	0.909	1.120	0.813	0.898
2	0.922	0.867	0.844	0.833	0.904	1.093	0.974	0.920
3	0.865	1.085	1.060	1.055	1.106	1.283	1.086	1.077
4	0.428	1.524	1.573	1.721	1.820	1.588	0.584	1.320
5	0.357	1.155	1.293	1.284	1.238	1.379	0.626	1.048
6	0.322	1.134	1.348	1.366	1.233	1.272	0.573	1.035
7	0.032	0.889	1.140	1.431	1.400	2.154	0.836	1.127
8	0.582	1.094	1.280	1.223	1.155	1.352	0.725	1.058
9	0.361	1.088	1.226	1.343	1.229	1.137	0.433	0.975
10	0.149	1.032	1.146	0.984	0.931	0.830	0.252	0.761
11	0.066	1.132	1.920	1.865	1.876	2.046	1.032	1.420
12		0.335	0.400	2.653		1.712		1.275
13	0.031	0.511	0.713	1.155	0.718	0.881	0.232	0.606
15	1.086	1.448	1.478	1.498	1.449	1.545	1.314	1.403
16*	0.916	1.025	1.029	1.033	1.067	1.229	1.034	1.048

* All Vehicle Types Combined

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.

Table 15. Predicted AADT from Monthly and Seasonal ADT Factors Compared to Unfactored AADT

Station	Date	Method	Mean	Percent Difference From Unfactored
ATR-23	April '95	Unfactored	26,497	
		Monthly Factors	27,028	+2.0
		Seasonal Factors	27,406	+3.4
ATR-23	July '95	Unfactored	27,893	
		Monthly Factors	24,962	-10.5
		Seasonal Factors	25,240	-9.5
ATR-47	January '95	Unfactored	10,200	
		Monthly Factors	12,956	+27.0
		Seasonal Factors	12,145	+19.1
ATR-47	October '95	Unfactored	13,010	
		Monthly Factors	12,510	-3.8
		Seasonal Factors	12,703	-2.3

Table 16. Monthly ADT Factors for Urban Interstates

ADT FACTOR, VEHICLE TYPE 1, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.861	0.783	0.450	0.000	0.000	1.876	1.395	1.238	0.947	0.680	0.769	0.000
TUE	1.179	0.792	0.884	0.000	0.000	0.793	1.847	0.469	0.670	1.466	0.898	0.000
WED	0.422	0.383	1.772	0.000	0.731	0.881	1.406	0.000	0.928	1.859	0.618	0.000
THU	1.186	0.442	0.835	0.000	0.000	0.856	2.481	0.000	0.580	0.859	0.762	0.000
FRI	0.942	0.518	0.000	0.000	0.000	1.260	1.579	0.000	0.629	1.204	0.868	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.918	0.584	0.985	0.000	0.731	1.133	1.742	0.854	0.751	1.214	0.783	0.000

ADT FACTOR, VEHICLE TYPE 2, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0	0	0	0	0	0	0	0	0	0	0	0
MON	0.641	0.745	1.676	0.117	0.000	1.299	1.318	1.093	0.748	0.623	1.739	0.000
TUE	0.371	0.439	1.630	1.005	0.000	0.590	1.526	1.441	1.728	0.498	0.772	0.000
WED	0.308	1.112	1.798	0.183	0.820	0.567	1.410	0.000	1.313	1.102	1.387	0.000
THU	0.638	1.491	1.295	0.210	0.000	0.659	2.878	0.394	0.191	1.218	1.026	0.000
FRI	0.688	0.769	0.618	2.126	0.000	0.000	0.749	0.000	1.256	0.426	1.368	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
AVG	0.529	0.911	1.403	0.728	0.820	0.779	1.576	0.976	1.047	0.773	1.459	0.000

ADT FACTOR, VEHICLE TYPE 3, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.919	2.059	1.365	0.127	0.000	1.109	0.000	0.000	0.000	1.003	0.418	0.000
TUE	0.487	1.003	1.589	0.000	0.000	0.114	0.000	0.000	0.000	0.326	2.480	0.000
WED	0.237	1.366	0.000	0.263	0.000	0.675	0.000	0.000	0.000	0.489	2.969	0.000
THU	0.572	3.332	0.000	0.047	0.000	0.250	0.000	0.000	0.000	0.466	1.332	0.000
FRI	0.731	0.000	0.930	0.711	0.000	0.576	0.000	0.000	0.000	0.647	2.403	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.589	1.940	1.295	0.287	0.000	0.545	0.000	0.000	0.000	0.586	1.921	0.000

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2. A zero factor indicates insufficient data.

Table 16. Monthly ADT Factors for Urban Interstates

ADT FACTOR, VEHICLE TYPE 4, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.800	0.791	1.145	0.315	0.000	1.542	1.499	0.354	0.661	0.877	2.017	0.000
TUE	1.082	1.257	0.798	1.577	0.000	0.677	0.613	0.332	1.740	0.728	1.196	0.000
WED	0.652	0.803	0.800	0.265	0.000	0.604	0.762	0.000	1.925	1.704	1.403	0.000
THU	0.944	1.444	0.973	0.000	0.000	0.627	1.682	0.103	0.275	1.417	1.455	0.000
FRI	0.559	1.123	1.074	0.252	0.000	1.122	0.465	0.000	1.448	0.440	2.518	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
AVG	0.807	1.084	0.958	0.602	0.000	0.930	1.004	0.290	1.210	1.033	1.598	0.000

ADT FACTOR, VEHICLE TYPE 5, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.448	0.745	1.516	0.228	0.000	1.403	0.860	1.708	0.433	0.589	2.069	0.000
TUE	0.520	0.533	1.797	1.334	0.000	0.293	1.522	1.128	1.409	0.615	0.848	0.000
WED	0.398	0.150	2.118	0.140	0.000	0.440	1.944	0.000	1.556	1.039	1.215	0.000
THU	0.710	0.964	1.780	0.187	0.000	0.659	2.624	0.523	0.227	1.146	1.180	0.000
FRI	0.568	0.737	0.729	1.166	0.000	0.958	0.963	0.000	1.368	0.692	1.818	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.529	0.626	1.508	0.611	0.000	0.751	1.583	1.120	0.998	0.816	1.426	0.000

ADT FACTOR, VEHICLE TYPE 6, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.470	1.216	1.527	0.129	0.000	1.381	0.977	0.000	0.347	0.502	2.549	0.000
TUE	0.504	0.484	1.460	2.184	0.000	0.365	1.230	1.411	1.152	0.615	0.593	0.000
WED	0.591	1.161	2.110	0.160	0.762	0.676	1.770	0.000	0.000	0.000	0.769	0.000
THU	0.700	0.967	1.423	0.367	0.000	1.130	0.318	0.489	1.724	1.344	1.536	0.000
FRI	0.495	0.686	0.477	1.004	0.000	0.782	0.860	0.000	1.951	0.542	2.203	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.552	0.903	1.399	0.769	0.762	0.867	1.011	0.950	1.294	0.751	1.530	0.000

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2. A zero factor indicates insufficient data.

Table 16. Monthly ADT Factors for Urban Interstates

ADT FACTOR, VEHICLE TYPE 7, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.212	0.275	2.791	0.000	0.000	0.753	0.869	0.443	1.724	0.305	1.630	0.000
TUE	0.223	0.163	2.206	0.959	0.000	0.163	0.709	1.245	1.502	0.417	2.412	0.000
WED	0.456	0.392	0.553	0.000	0.164	0.261	0.879	0.000	0.273	0.380	5.644	0.000
THU	0.365	0.290	0.753	0.000	0.000	0.679	1.214	0.000	0.171	1.249	3.280	0.000
FRI	0.440	0.316	1.015	0.446	0.000	0.850	1.467	0.000	1.303	0.235	2.929	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.339	0.287	1.464	0.702	0.164	0.541	1.028	0.844	0.995	0.517	3.179	0.000

ADT FACTOR, VEHICLE TYPE 8, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.631	0.630	2.081	0.350	0.000	1.701	0.594	0.628	0.483	0.864	2.039	0.000
TUE	0.788	0.605	2.317	1.125	0.000	0.673	0.918	0.517	1.160	0.941	0.955	0.000
WED	0.477	0.765	2.372	0.268	1.145	1.161	0.949	0.000	0.712	0.971	1.181	0.000
THU	0.685	0.765	1.492	0.304	0.000	2.231	0.814	0.801	0.401	1.190	1.318	0.000
FRI	0.885	0.784	1.132	0.889	0.000	0.000	0.923	0.409	0.977	1.236	1.785	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.693	0.710	1.879	0.593	1.145	1.441	0.839	0.589	0.747	1.040	1.455	0.000

ADT FACTOR, VEHICLE TYPE 9, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.930	0.419	2.264	2.053	0.000	0.584	0.513	0.405	0.979	0.772	1.081	0.000
TUE	0.584	0.303	2.542	1.730	0.000	0.395	1.023	0.448	1.061	0.729	1.183	0.000
WED	0.684	0.512	1.901	1.704	0.197	0.483	1.405	0.846	1.110	0.795	1.364	0.000
THU	0.608	0.454	1.494	0.685	0.000	0.897	1.541	0.000	0.811	0.894	1.616	0.000
FRI	0.861	1.156	0.054	1.154	0.000	0.558	1.086	0.000	1.206	0.756	2.168	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.733	0.569	1.651	1.465	0.197	0.584	1.113	0.566	1.033	0.789	1.482	0.000

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.
A zero factor indicates insufficient data.

Table 16. Monthly ADT Factors for Urban Interstates

ADT FACTOR, VEHICLE TYPE 10, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.914	0.711	1.306	0.625	0.000	1.436	0.917	1.051	0.973	0.961	1.206	0.000
TUE	0.904	1.021	1.626	1.206	0.000	1.040	1.064	0.581	0.726	0.941	0.892	0.000
WED	0.870	0.913	1.368	0.517	0.625	0.775	0.772	0.000	1.808	0.964	1.389	0.000
THU	0.849	0.665	1.883	1.037	0.000	0.916	1.038	0.728	0.873	1.184	0.824	0.000
FRI	0.624	0.498	1.329	1.751	0.000	1.113	0.659	0.000	0.649	0.937	1.440	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.832	0.762	1.502	1.027	0.625	1.056	0.890	0.787	0.986	0.997	1.150	0.000

ADT FACTOR, VEHICLE TYPE 11, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.480	0.718	2.572	1.543	0.000	0.362	0.553	0.433	1.173	1.098	1.067	0.000
TUE	0.451	0.664	2.053	0.936	0.000	0.885	0.869	0.530	1.177	1.047	1.388	0.000
WED	0.627	0.478	3.017	1.062	0.000	0.496	0.634	0.000	0.759	0.923	1.003	0.000
THU	0.272	0.538	2.111	0.669	0.000	0.885	0.639	1.364	0.895	1.160	1.467	0.000
FRI	0.501	0.575	1.539	0.910	0.000	0.534	0.819	0.000	1.029	1.247	1.847	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.466	0.594	2.259	1.024	0.000	0.633	0.703	0.776	1.007	1.095	1.354	0.000

ADT FACTOR, VEHICLE TYPE 12, URBAN INTERSTATE												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.725	1.187	1.706	0.676	0.000	1.088	0.709	0.000	0.709	0.956	1.244	0.000
TUE	0.789	0.822	1.841	1.262	0.000	0.842	1.052	0.000	0.646	0.721	1.025	0.000
WED	0.911	0.759	2.299	1.063	0.701	0.678	1.058	0.000	0.607	0.908	1.017	0.000
THU	0.668	0.688	1.545	0.632	0.000	0.915	0.882	0.618	1.854	0.974	1.224	0.000
FRI	0.801	0.696	1.070	0.749	0.000	0.714	1.335	0.000	1.123	1.442	1.071	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.779	0.830	1.692	0.876	0.701	0.847	1.007	0.618	0.988	1.000	1.116	0.000

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.
A zero factor indicates insufficient data.

Table 16. Monthly ADT Factors for Urban Interstates

		ADT FACTOR, VEHICLE TYPE 13, URBAN INTERSTATE											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TUE		0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WED		0.000	0.000	0.997	0.000	0.635	1.169	0.000	0.000	0.000	0.000	0.000	0.000
THU		0.914	0.852	0.447	0.000	0.000	1.787	0.000	0.000	0.000	0.000	0.000	0.000
FRI		0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000
SAT		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG		0.914	0.852	1.222	0.000	0.835	1.478	1.000	0.000	0.000	1.000	0.000	0.000

		ADT FACTOR, VEHICLE TYPE COAL, URBAN INTERSTATE											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TUE		0.000	0.000	0.633	1.183	0.000	0.000	0.000	0.000	0.000	1.183	0.000	0.000
WED		0.000	0.489	0.969	0.000	0.000	1.841	0.000	0.000	0.000	0.701	0.000	0.000
THU		0.000	0.960	0.895	0.000	0.000	2.238	0.000	0.000	0.000	0.479	0.427	0.000
FRI		0.000	0.791	0.000	0.000	0.000	0.000	1.299	0.000	0.000	0.910	0.000	0.000
SAT		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG		0.000	0.747	0.832	1.183	0.000	2.040	1.299	0.000	0.000	0.818	0.427	0.000

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2. A zero factor indicates insufficient data.

Table 17. Monthly ADT Factors for Urban Other

ADT FACTOR, VEHICLE TYPE 1, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.575	0.000	1.202	0.902	1.222	1.716	0.905	1.107	0.678	1.243	0.889	0.512
TUE	0.610	0.662	1.741	1.102	1.166	1.604	0.902	1.167	0.746	0.746	0.770	0.713
WED	1.212	0.551	0.882	1.165	1.537	1.181	0.931	0.945	1.079	0.888	0.913	0.716
THU	1.016	0.631	0.956	1.236	1.199	1.205	0.951	1.127	0.901	1.203	0.631	0.914
FRI	2.013	0.934	0.627	1.075	1.430	0.997	1.007	0.896	0.816	0.965	0.598	0.612
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
AVG	1.085	0.695	1.082	1.096	1.311	1.341	0.939	1.048	0.844	1.007	0.760	0.710

ADT FACTOR, VEHICLE TYPE 2, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	1.174	0.826	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.845	0.934	0.517	1.380	1.144	0.932	0.519	1.036	0.888	0.904	1.644	1.216
TUE	1.000	1.133	1.413	0.877	1.041	0.853	0.489	0.782	0.696	0.762	1.194	1.710
WED	0.998	1.523	1.046	0.828	0.890	0.813	0.352	0.729	0.743	0.638	1.089	2.312
THU	1.163	1.429	1.017	0.935	1.025	1.146	0.453	0.808	0.986	0.782	0.709	1.516
FRI	0.905	0.322	1.082	0.699	0.995	0.636	0.566	0.604	1.737	1.333	1.580	1.512
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
AVG	0.982	1.068	1.015	0.944	1.045	0.868	0.476	0.792	1.010	0.903	1.243	1.611

ADT FACTOR, VEHICLE TYPE 3, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.902	0.892	0.598	1.425	1.007	1.097	0.626	1.635	0.481	0.835	1.391	1.111
TUE	1.377	1.201	1.860	0.925	0.670	0.931	0.346	0.762	0.374	0.721	1.270	1.512
WED	1.323	1.782	1.289	0.907	0.845	0.701	0.263	0.532	0.539	0.594	1.070	2.115
THU	1.227	1.624	1.343	0.966	0.971	1.033	0.494	0.710	0.914	0.693	0.589	1.416
FRI	1.024	1.246	1.110	0.797	1.172	0.747	0.734	0.652	0.286	1.153	1.674	1.413
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
AVG	1.171	1.349	1.240	1.004	0.944	0.902	0.493	0.858	0.519	0.833	1.199	1.513

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.
 A zero factor indicates insufficient data.

Table 17. Monthly ADT Factors for Urban Other

ADT FACTOR, VEHICLE TYPE 7, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	1.626	0.000	0.567	0.505	0.723	2.399	0.942	0.922	1.004	0.722	0.632	0.927
TUE	0.485	0.677	0.679	2.044	0.593	1.765	0.803	1.925	0.787	0.789	0.859	0.692
WED	0.439	0.399	0.879	2.636	0.859	1.207	0.747	1.021	0.864	0.974	1.383	0.591
THU	0.590	0.413	0.765	0.480	0.587	1.657	1.344	2.385	0.899	0.733	1.375	0.771
FRI	2.008	0.485	0.912	0.521	1.325	2.193	0.538	0.652	1.117	0.876	0.829	0.534
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	1.030	0.494	0.760	1.237	0.817	1.842	0.879	1.367	0.934	0.819	1.015	0.703

ADT FACTOR, VEHICLE TYPE 8, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	1.034	0.966	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.453	0.291	0.520	0.520	0.442	1.105	0.486	0.766	0.520	5.922	0.569	0.405
TUE	0.638	0.898	1.199	0.838	0.693	1.411	1.234	1.558	0.738	0.927	1.164	0.702
WED	0.661	1.221	1.014	1.338	1.092	1.234	0.836	0.902	0.829	0.892	0.998	0.982
THU	0.712	0.740	1.123	0.746	0.771	1.401	1.193	1.456	1.135	0.844	0.867	1.013
FRI	0.724	0.661	1.617	0.648	0.752	1.284	1.351	1.142	0.870	1.029	1.014	0.909
SAT	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.637	0.762	1.094	0.818	0.826	1.233	1.020	1.165	0.819	1.923	0.922	0.802

ADT FACTOR, VEHICLE TYPE 9, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	1.386	0.614	0.000	0.000	0.000	0.000	0.000	0.000
MON	1.297	0.244	1.542	0.217	0.083	1.951	0.059	0.728	1.361	2.935	0.502	0.000
TUE	0.168	0.932	1.861	0.608	0.334	1.801	1.030	1.086	0.936	0.305	0.922	1.936
WED	1.464	1.009	0.825	0.723	0.344	0.846	0.289	1.099	0.438	0.537	2.956	1.469
THU	0.693	0.333	5.044	0.714	0.137	1.141	0.145	1.705	0.632	0.454	0.079	0.923
FRI	0.753	0.482	3.902	0.245	0.796	2.120	0.216	0.202	1.210	0.832	0.548	0.693
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
AVG	0.875	0.600	2.635	0.501	0.513	1.412	0.348	0.964	0.916	1.229	1.018	1.255

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2. A zero factor indicates insufficient data.

Table 17. Monthly ADT Factors for Urban Other

ADT FACTOR, VEHICLE TYPE 10, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.852	0.000	1.148	0.000	0.000	0.000	0.000	0.000	0.000
MON	1.152	2.513	1.445	0.322	0.790	0.691	0.000	0.722	0.831	0.844	0.691	0.000
TUE	0.673	1.341	1.080	0.673	0.792	0.900	0.919	0.904	0.765	0.757	2.477	0.720
WED	0.000	1.248	0.824	0.811	1.006	0.952	0.789	0.783	0.961	1.054	1.572	0.000
THU	0.993	2.424	0.777	1.277	0.555	0.863	0.791	0.708	0.951	1.068	0.000	0.593
FRI	1.240	0.925	1.988	0.000	0.945	0.000	0.000	0.000	0.883	0.709	0.632	0.678
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	1.015	1.690	1.222	0.787	0.817	0.911	0.833	0.779	0.878	0.886	1.343	0.664

ADT FACTOR, VEHICLE TYPE 11, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.737	0.670	0.000	0.686	1.768	0.737	0.000	2.079	0.720	0.720	0.884	0.000
TUE	0.000	2.063	0.474	2.218	0.444	0.815	0.444	0.908	0.713	0.444	1.479	0.000
WED	0.000	2.936	0.790	1.346	0.421	0.812	0.450	0.947	0.431	0.421	0.421	2.026
THU	0.846	0.000	0.000	0.846	0.965	0.827	0.884	1.309	1.240	0.884	1.314	0.884
FRI	0.990	0.000	0.000	0.926	0.990	1.177	0.000	0.000	0.926	0.990	0.000	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.858	1.890	0.632	1.204	0.917	0.873	0.593	1.311	0.806	0.692	1.024	1.455

ADT FACTOR, VEHICLE TYPE 12, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TUE	0.000	0.762	0.000	0.995	0.819	0.967	0.000	0.000	0.000	1.638	0.819	0.000
WED	0.000	1.538	0.846	1.128	0.826	1.010	0.000	0.826	0.000	0.000	0.826	0.000
THU	0.000	0.000	0.000	1.031	1.008	0.000	0.000	0.000	0.000	0.000	0.961	0.000
FRI	0.000	0.763	0.000	0.821	0.000	0.782	0.878	0.000	0.000	1.756	0.000	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.000	1.021	0.846	0.993	0.884	0.920	0.878	0.826	0.000	1.697	0.869	0.000

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.
A zero factor indicates insufficient data.

Table 17. Monthly ADT Factors for Urban Other

ADT FACTOR, VEHICLE TYPE 13, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
TUE	0.000	0.000	0.000	0.000	0.903	0.000	0.000	0.000	1.097	0.000	0.000	0.000
WED	0.000	0.000	0.000	0.000	0.000	0.796	0.000	0.000	0.000	0.876	1.327	0.000
THU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
FRI	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG	0.000	0.000	0.000	0.000	0.903	0.796	0.000	0.000	1.049	0.938	1.327	0.000

ADT FACTOR, VEHICLE TYPE COAL, URBAN OTHER												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SUN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MON	1.434	2.216	0.300	0.000	0.669	1.577	0.000	0.525	0.280	0.000	0.000	0.000
TUE	1.181	1.678	1.536	0.964	0.000	1.931	0.000	0.492	0.365	0.000	0.639	0.214
WED	0.216	1.768	2.131	0.000	0.000	0.000	0.000	0.739	0.000	0.211	0.935	0.000
THU	0.381	2.259	2.459	0.839	0.279	0.000	0.000	0.559	0.224	0.000	0.000	0.000
FRI	1.244	0.000	0.997	0.930	0.000	0.000	0.000	0.000	0.000	0.829	0.000	0.000
SAT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
AVG	0.891	1.980	1.485	0.911	0.474	1.754	0.000	0.579	0.289	0.680	0.787	0.214

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 2.
A zero factor indicates insufficient data.

Table 18. Winter ADT Factors
Urban Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.822	0.986	0.403	0.814	0.730			0.751
2	0.693	0.405	0.710	1.065	0.729			0.720
3	1.489	0.760	0.802	1.952	0.731			1.147
4	0.796	1.170	0.728	1.194	0.841			0.946
5	0.597	0.527	0.274	0.837	0.653			0.577
6	0.843	0.494	0.876	0.834	0.591			0.727
7	0.244	0.193	0.424	0.328	0.378			0.313
8	0.631	0.697	0.621	0.725	0.835			0.702
9	0.675	0.444	0.598	0.531	1.009			0.651
10	0.813	0.963	0.892	0.757	0.561			0.797
11	0.599	0.558	0.553	0.405	0.538			0.530
12	0.956	0.806	0.835	0.678	0.749			0.805
13								
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Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7. Blank cells indicate insufficient data.

Table 19. Spring ADT Factors
Urban Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.450	0.884	1.252	0.835				0.855
2	0.897	1.318	0.934	0.753	1.372			1.054
3	0.746	1.589	0.263	0.047	0.821			0.693
4	0.730	1.188	0.533	0.973	0.663			0.817
5	0.872	1.566	1.129	0.984	0.948			1.100
6	0.828	1.822	1.011	0.895	0.761			1.063
7	2.791	1.583	0.359	0.753	0.731			1.243
8	1.216	1.721	1.262	0.898	1.001			1.219
9	2.159	2.136	1.267	1.090	0.604			1.451
10	0.966	1.416	0.837	1.460	1.540			1.244
11	2.058	1.495	2.040	1.390	1.225			1.642
12	1.191	1.552	1.354	1.089	0.910			1.219
13		1.000	0.916	0.447				0.788
15								

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7. Blank cells indicate insufficient data.

Table 20. Summer ADT Factors
Urban Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	1.503	1.036	1.144	1.669	1.420			1.354
2	1.237	1.186	0.989	1.310	0.749			1.094
3	1.109	0.114	0.675	0.250	0.576			0.545
4	1.132	0.541	0.723	0.831	0.794			0.804
5	1.324	0.981	1.192	1.269	0.961			1.145
6	1.129	1.002	1.223	0.646	0.821			0.964
7	0.688	0.706	0.570	0.947	1.159			0.814
8	0.974	0.703	1.055	1.282	0.666			0.936
9	0.501	0.622	0.911	1.219	0.822			0.815
10	1.135	0.895	0.774	0.895	0.886			0.917
11	0.449	0.761	0.565	0.963	0.677			0.683
12	0.899	0.947	0.868	0.805	1.025			0.909
13			1.169	1.787	1.000			1.319
15								

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7. Blank cells indicate insufficient data.

Table 21. Fall ADT Factors

Urban Interstates and Parkways

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.799	1.011	1.135	0.734	0.900			0.916
2	1.037	0.999	1.267	0.812	1.017	1.000		1.022
3	0.711	1.403	1.729	0.899	1.526			1.254
4	1.185	1.221	1.677	1.049	1.469	1.000		1.267
5	1.030	0.957	1.270	0.851	1.293			1.080
6	1.133	0.787	0.769	1.535	1.565			1.158
7	1.220	1.444	2.099	1.567	1.489			1.564
8	1.129	1.019	0.955	0.970	1.333			1.081
9	0.944	0.991	1.090	1.107	1.377			1.101
10	1.013	0.853	1.387	0.960	1.009			1.044
11	1.113	1.204	0.895	1.174	1.374			1.152
12	0.970	0.797	0.844	1.351	1.212			1.035
13	1.000							1.000
15								

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.
Blank cells indicate insufficient data.

Table 22. Winter ADT Factors

Urban Other

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.569	0.685	0.826	0.864	1.196			0.828
2	1.012	1.298	1.624	1.379	0.923			1.247
3	0.968	1.380	1.753	1.429	1.224			1.351
4	0.628	0.895	1.219	0.951	1.206			0.980
5	0.946	1.215	1.488	1.334	1.083			1.213
6	0.753	0.749	0.750	0.815	0.986			0.810
7	1.277	0.618	0.476	0.591	1.009			0.794
8	0.383	0.746	0.955	0.822	0.765			0.734
9	0.771	1.012	1.314	0.650	0.643			0.878
10	1.833	0.911	1.248	1.337	0.948			1.255
11	0.704	2.063	2.481	0.865	0.990			1.421
12		0.762	1.538		0.763			1.021
13								
15								

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7. Blank cells indicate insufficient data.

Table 23. Spring ADT Factors
Urban Other

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1		1.109	1.336	1.195	1.130	1.044		1.163
2	1.174	1.014	1.110	0.921	0.992	0.925		1.023
3	1.000	1.010	1.152	1.014	1.093	1.026		1.049
4		1.076	1.269	1.089	1.031	0.685		1.030
5		0.910	1.076	0.938	1.019	0.894		0.972
6	1.475	0.840	1.300	1.148	1.305	1.231		1.216
7		0.598	1.105	1.458	0.611	0.919		0.938
8	1.034	0.494	0.910	1.148	0.880	1.006	1.000	0.925
9	1.386	0.614	0.934	0.631	1.965	1.648		1.196
10	0.852	0.852	0.848	0.880	0.870	1.467		0.962
11		1.227	1.045	0.852	0.906	0.958		0.998
12			0.907	0.933	1.020	0.821		0.920
13			0.903					0.903
15								#DIV/0!

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7. Blank cells indicate insufficient data.

Table 24. Summer ADT Factors
Urban Other

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1		1.243	1.224	1.019	1.094	0.990		1.114
2	0.826	0.829	0.700	0.687	0.802	0.602		0.741
3		1.119	0.680	0.499	0.746	0.711		0.751
4		0.894	0.696	0.523	0.672	0.456		0.648
5	1.090	0.975	0.827	0.601	0.786	0.594		0.812
6	0.525	1.430	1.014	0.919	0.878	0.717		0.914
7		1.431	1.465	0.992	1.795	1.131		1.363
8	0.966	0.786	1.401	0.991	1.350	1.259		1.125
9	0.614	0.913	1.306	0.745	0.997	0.846		0.903
10	1.148	0.707	0.908	0.841	0.787			0.878
11		1.408	0.722	0.736	1.007	1.177		1.010
12			0.967	0.918		0.830		0.905
13				0.796				0.796
15								

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7.
Blank cells indicate insufficient data.

Table 25. Fall ADT Factors

Urban Other

Vehicle Type	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Avg.
1	0.937	0.754	0.960	0.912	0.793	1.000	1.000	0.893
2	1.145	0.884	0.823	0.826	1.550	1.000	1.000	1.038
3	0.902	0.788	0.734	0.732	1.038	1.000	1.000	0.866
4	1.366	1.139	1.168	1.347	1.653			1.335
5	1.084	0.882	0.972	0.862	1.428			1.046
6	0.976	0.938	1.183	1.003	1.066	1.000	1.000	1.028
7	0.786	0.812	1.074	1.002	0.941			0.923
8	2.337	0.943	0.906	0.949	0.971			1.221
9	1.626	0.748	1.310	0.388	0.863	1.000	1.000	0.989
10	0.789	1.333	1.196	1.010	0.741			1.014
11	0.775	0.879	0.424	1.146	0.958			0.836
12		1.229	0.826	0.961	1.756			1.193
13	1.000	1.097	1.102	1.000				1.050
15								

Note: The factors in this table are used in the same way as illustrated in the examples shown on Table 7. Blank cells indicate insufficient data.

Table 26. Hourly Factors Rural Interstates and Parkways

HOUR	INTERSTATES & PARKWAYS (ALL SEASONS, 1994)																						
	VT-1	VT-2	VT-3	VT-4	VT-5	VT-6	VT-7	VT-8	VT-9	VT-10	VT-11	VT-12	VT-13	VT-14	ALL VT								
0	.0153	.0093	.0111	.0250	.0147	.0113	.0047	.0222	.0352	.0097	.0575	.0648	.0000		.0151								
1	.0102	.0064	.0077	.0321	.0139	.0079	.0000	.0178	.0327	.0048	.0504	.0405	.0125		.0121								
2	.0153	.0054	.0072	.0018	.0099	.0045	.0000	.0203	.0260	.0121	.0540	.0324	.0125		.0100								
3	.0102	.0060	.0074	.0268	.0125	.0068	.0000	.0231	.0270	.0048	.0513	.0243	.0000		.0111								
4	.0051	.0094	.0110	.0143	.0123	.0068	.0000	.0260	.0263	.0145	.0557	.0486	.0000		.0131								
5	.0153	.0172	.0196	.0214	.0198	.0147	.0000	.0400	.0304	.0169	.0464	.0162	.0125		.0210								
6	.0255	.0399	.0434	.0321	.0340	.0420	.0521	.0441	.0333	.0412	.0557	.0567	.0250		.0390								
7	.0612	.0604	.0613	.0464	.0505	.0510	.0569	.0513	.0381	.0266	.0398	.0445	.0625		.0557								
8	.0357	.0621	.0594	.0482	.0579	.0533	.0379	.0428	.0419	.0484	.0323	.0405	.0500		.0561								
9	.0357	.0568	.0625	.0518	.0701	.0635	.0948	.0478	.0467	.0702	.0349	.0648	.0375		.0564								
10	.0306	.0582	.0632	.0643	.0707	.0510	.1280	.0632	.0530	.1090	.0451	.0486	.0750		.0589								
11	.0102	.0566	.0603	.0446	.0696	.0624	.0379	.0578	.0521	.0702	.0367	.0567	.0750		.0561								
12	.0867	.0556	.0577	.0679	.0690	.0658	.0474	.0647	.0511	.0823	.0363	.0607	.0875		.0551								
13	.0510	.0573	.0586	.0571	.0693	.0816	.0853	.0547	.0492	.0605	.0380	.0324	.0875		.0562								
14	.0612	.0647	.0640	.0804	.0735	.0918	.0758	.0553	.0500	.0678	.0451	.0486	.0625		.0619								
15	.0867	.0741	.0707	.0696	.0707	.0805	.0806	.0525	.0480	.0460	.0385	.0607	.0250		.0670								
16	.0816	.0847	.0817	.0643	.0634	.0839	.0427	.0547	.0510	.0557	.0433	.0243	.0875		.0760								
17	.0561	.0826	.0732	.0411	.0582	.0601	.0237	.0535	.0459	.0702	.0345	.0972	.1000		.0710								
18	.0408	.0581	.0550	.0536	.0429	.0431	.0664	.0435	.0436	.0508	.0327	.0243	.0500		.0530								
19	.0765	.0425	.0394	.0411	.0336	.0317	.0284	.0394	.0436	.0218	.0190	.0040	.0500		.0410								
20	.0510	.0313	.0284	.0161	.0292	.0249	.0569	.0410	.0451	.0484	.0314	.0162	.0250		.0332								
21	.0255	.0262	.0237	.0375	.0225	.0363	.0095	.0331	.0451	.0242	.0279	.0243	.0125		.0291								
22	.0714	.0196	.0190	.0232	.0187	.0147	.0047	.0285	.0414	.0194	.0407	.0283	.0125		.0231								
23	.0408	.0155	.0147	.0393	.0134	.0102	.0664	.0225	.0431	.0242	.0526	.0405	.0375		.0210								

Note: When a vehicle classification count is taken for less than 24 hours, the number of vehicles counted in any particular class is divided by the sum of all the coefficients taken from the table for the particular hours of the day that the count was made (for that particular class).

Example: A 6-hour count was made from 6:00 a.m. to 12:00 noon. A total of 3,500 Type 2s were counted. The average annual Type 2s per day would equal the following: $3,500 / (0.0399+0.0604+0.0621+0.0568+0.0582+0.0566) = 10,479$ Type 2s per day. It should be noted that these factors are not seasonally adjusted.

Table 27. Hourly Factors Rural Non-Interstates and Parkways

HOUR	HOURLY FACTOR FOR RURAL NON-INTERSTATE & PARKWAY (ALL SEASONS, 1994)																						
	VT-1	VT-2	VT-3	VT-4	VT-5	VT-6	VT-7	VT-8	VT-9	VT-10	VT-11	VT-12	VT-13	VT-14	ALL VT								
0	.0079	.0074	.0054	.0081	.0056	.0036	.0000	.0090	.0185	.0117	.0610	.0000	.0000	.0000	.0071								
1	.0068	.0044	.0032	.0046	.0044	.0032	.0000	.0097	.0152	.0141	.0732	.0000	.0000	.0000	.0044								
2	.0051	.0030	.0031	.0058	.0037	.0020	.0073	.0099	.0137	.0187	.0244	.0000	.0000	.0000	.0034								
3	.0056	.0031	.0035	.0075	.0055	.0028	.0091	.0109	.0152	.0258	.0122	.0000	.0000	.0000	.0016								
4	.0045	.0059	.0068	.0109	.0092	.0063	.0091	.0142	.0221	.0398	.0732	.0000	.0120	.0000	.0056								
5	.0062	.0191	.0207	.0109	.0282	.0253	.0091	.0217	.0238	.0304	.0488	.0000	.0000	.0000	.0197								
6	.0304	.0442	.0479	.0478	.0550	.0355	.0237	.0498	.0420	.0562	.0854	.0000	.0120	.0000	.0451								
7	.0310	.0605	.0594	.1285	.0689	.0608	.0692	.0650	.0517	.0585	.0122	.0000	.0482	.0714	.0607								
8	.0298	.0512	.0610	.0956	.0705	.0781	.0874	.0640	.0543	.0398	.0122	.0000	.0602	.0000	.0542								
9	.0360	.0470	.0606	.0565	.0699	.0856	.1020	.0699	.0701	.0515	.0000	.0000	.0602	.0000	.0513								
10	.0450	.0481	.0608	.0634	.0700	.0845	.0801	.0664	.0666	.0679	.0610	.0000	.1205	.0714	.0511								
11	.0495	.0528	.0636	.0472	.0701	.0797	.0856	.0704	.0658	.0539	.0366	.0000	.0843	.0357	.0560								
12	.0495	.0572	.0637	.0541	.0670	.0777	.0911	.0687	.0685	.0515	.0244	.0000	.0723	.1071	.0592								
13	.0648	.0565	.0625	.0582	.0697	.0876	.0911	.0647	.0734	.0703	.0122	.0000	.0843	.0357	.0588								
14	.0800	.0614	.0637	.0893	.0780	.0888	.0965	.0685	.0687	.0656	.0488	.5000	.1084	.1071	.0630								
15	.0895	.0799	.0772	.1394	.0773	.0892	.0965	.0659	.0603	.0445	.0366	.5000	.1325	.2143	.0793								
16	.0946	.0872	.0821	.0662	.0687	.0663	.0692	.0624	.0552	.0726	.0610	.0000	.0723	.1429	.0846								
17	.1014	.0818	.0708	.0259	.0546	.0418	.0310	.0520	.0504	.0562	.0610	.0000	.0482	.1429	.0714								
18	.0693	.0653	.0565	.0190	.0389	.0284	.0182	.0491	.0381	.0351	.0366	.0000	.0241	.0714	.0616								
19	.0580	.0519	.0439	.0179	.0280	.0209	.0036	.0312	.0330	.0375	.0000	.0000	.0482	.0000	.0486								
20	.0462	.0434	.0346	.0173	.0229	.0142	.0055	.0246	.0295	.0187	.0610	.0000	.0120	.0000	.0402								
21	.0389	.0328	.0239	.0115	.0162	.0067	.0036	.0250	.0209	.0304	.0976	.0000	.0000	.0000	.0300								
22	.0310	.0217	.0144	.0075	.0103	.0043	.0036	.0156	.0219	.0258	.0366	.0000	.0000	.0000	.0197								
23	.0191	.0142	.0106	.0069	.0073	.0067	.0073	.0113	.0209	.0234	.0244	.0000	.0000	.0000	.0113								

Note: The factors in this table are used in the same way as illustrated in the example shown on Table 26.

Table 28. Hourly Factors Urban Interstates and Parkways

HOUR	HOURLY FACTOR FOR URBAN INTERSTATES & PARKWAYS (ALL SEASONS, 1994)																						
	VT-1	VT-2	VT-3	VT-4	VT-5	VT-6	VT-7	VT-8	VT-9	VT-10	VT-11	VT-12	VT-13	VT-14	ALL	VT							
0	.0155	.0105	.0100	.0073	.0113	.0066	.0006	.0166	.0353	.0224	.0448	.0600	.0152			.0122							
1	.0155	.0064	.0063	.0073	.0073	.0048	.0006	.0170	.0312	.0200	.0465	.0578	.0152			.0084							
2	.0091	.0048	.0051	.0047	.0070	.0062	.0006	.0177	.0292	.0237	.0413	.0385	.0000			.0068							
3	.0026	.0045	.0054	.0069	.0072	.0072	.0000	.0208	.0272	.0262	.0390	.0535	.0000			.0066							
4	.0026	.0066	.0084	.0069	.0117	.0079	.0024	.0237	.0290	.0175	.0511	.0535	.0152			.0090							
5	.0168	.0167	.0226	.0146	.0198	.0187	.0018	.0291	.0306	.0224	.0413	.0493	.0455			.0194							
6	.0569	.0477	.0583	.0591	.0392	.0466	.0255	.0422	.0359	.0324	.0495	.0600	.0606			.0494							
7	.0453	.0868	.0840	.0996	.0580	.0556	.0704	.0452	.0364	.0436	.0440	.0364	.0455			.0813							
8	.0427	.0667	.0605	.0795	.0733	.0735	.0971	.0538	.0404	.0574	.0348	.0535	.0758			.0633							
9	.0479	.0465	.0497	.0719	.0765	.0814	.1220	.0597	.0458	.0786	.0380	.0493	.0303			.0484							
10	.0375	.0428	.0486	.0467	.0763	.0904	.1104	.0615	.0500	.0873	.0418	.0364	.0909			.0461							
11	.0582	.0464	.0508	.0467	.0766	.0839	.0831	.0590	.0530	.0873	.0443	.0278	.0455			.0491							
12	.0479	.0482	.0513	.0620	.0708	.0819	.0862	.0597	.0514	.0648	.0390	.0450	.0606			.0501							
13	.0505	.0487	.0529	.0653	.0739	.0771	.0898	.0556	.0498	.0586	.0370	.0493	.0758			.0507							
14	.0906	.0549	.0601	.1073	.0745	.0875	.0880	.0617	.0519	.0586	.0448	.0321	.0606			.0568							
15	.0776	.0683	.0759	.0759	.0731	.0793	.0728	.0610	.0504	.0723	.0410	.0428	.0455			.0691							
16	.0712	.0825	.0875	.0861	.0686	.0584	.0570	.0612	.0483	.0436	.0465	.0407	.0909			.0806							
17	.0453	.0905	.0784	.0525	.0501	.0405	.0376	.0551	.0436	.0399	.0360	.0300	.0758			.0823							
18	.0699	.0636	.0551	.0372	.0406	.0264	.0261	.0494	.0466	.0262	.0333	.0343	.0152			.0592							
19	.0530	.0443	.0380	.0175	.0251	.0217	.0085	.0370	.0443	.0274	.0330	.0321	.0000			.0419							
20	.0479	.0361	.0301	.0080	.0184	.0141	.0061	.0316	.0425	.0237	.0278	.0364	.0455			.0343							
21	.0375	.0338	.0258	.0139	.0158	.0128	.0036	.0282	.0441	.0200	.0418	.0236	.0152			.0318							
22	.0272	.0253	.0206	.0117	.0136	.0087	.0079	.0277	.0439	.0274	.0523	.0236	.0606			.0251							
23	.0310	.0174	.0146	.0113	.0112	.0087	.0018	.0252	.0394	.0187	.0508	.0343	.0152			.0181							

Note: The factors in this table are used in the same way as illustrated in the example shown on Table 26.

Table 29. Hourly Factors Urban Non-Interstates and Parkways

HOURLY HOUR	URBAN NON-INTERSTATE & PARKWAY (ALL SEASONS, 1994)																						
	VT-1	VT-2	VT-3	VT-4	VT-5	VT-6	VT-7	VT-8	VT-9	VT-10	VT-11	VT-12	VT-13	VT-14	ALL	VT							
0	.0136	.0090	.0056	.0034	.0056	.0067	.0000	.0094	.0158	.0093	.0274	.0000	.0256	.0000	.0085								
1	.0091	.0049	.0032	.0008	.0035	.0077	.0030	.0076	.0158	.0000	.0685	.2500	.0000	.0000	.0047								
2	.0091	.0033	.0025	.0042	.0030	.0036	.0000	.0094	.0178	.0047	.0274	.0000	.0000	.0000	.0034								
3	.0125	.0027	.0025	.0034	.0042	.0077	.0060	.0057	.0158	.0140	.0548	.0000	.0256	.0000	.0029								
4	.0034	.0044	.0060	.0076	.0106	.0077	.0000	.0090	.0117	.0187	.0274	.0000	.0000	.0000	.0049								
5	.0136	.0133	.0190	.0143	.0183	.0164	.0181	.0175	.0249	.0234	.0548	.0000	.0256	.0256	.0144								
6	.0454	.0361	.0458	.0656	.0482	.0452	.0301	.0302	.0426	.0514	.0411	.0000	.0513	.0513	.0380								
7	.0284	.0584	.0663	.0976	.0714	.0714	.0843	.0657	.0538	.0607	.0274	.0000	.1538	.1538	.0600								
8	.0397	.0489	.0600	.1093	.0761	.0873	.0753	.0633	.0647	.0748	.0137	.0000	.1026	.1282	.0517								
9	.0375	.0445	.0607	.0580	.0820	.0868	.1265	.0732	.0735	.0654	.0411	.0000	.0256	.0513	.0484								
10	.0488	.0481	.0612	.0505	.0724	.0827	.0843	.0647	.0754	.0981	.0274	.0000	.0513	.0513	.0511								
11	.0443	.0570	.0652	.0622	.0702	.0719	.0723	.0794	.0754	.0654	.0274	.0000	.0513	.0513	.0589								
12	.0772	.0643	.0671	.0858	.0745	.0745	.0753	.0803	.0658	.0654	.0411	.0000	.1026	.0256	.0652								
13	.0624	.0604	.0657	.0538	.0817	.0765	.0572	.0737	.0626	.0888	.0411	.0000	.0256	.0256	.0617								
14	.0579	.0643	.0690	.0992	.0710	.0668	.0572	.0751	.0590	.0748	.0548	.7500	.0256	.0256	.0652								
15	.0692	.0733	.0748	.1093	.0785	.0714	.0994	.0789	.0601	.0841	.0274	.0000	.0256	.0513	.0736								
16	.0670	.0816	.0795	.0589	.0670	.0580	.0934	.0675	.0524	.0374	.0685	.0000	.0256	.0769	.0804								
17	.0568	.0815	.0702	.0454	.0515	.0473	.0512	.0538	.0475	.0561	.0411	.0000	.0256	.1026	.0784								
18	.0704	.0654	.0527	.0202	.0353	.0318	.0241	.0387	.0325	.0514	.0685	.0000	.0769	.0513	.0621								
19	.0658	.0515	.0394	.0143	.0251	.0257	.0151	.0279	.0350	.0093	.0000	.0000	.0513	.0513	.0486								
20	.0590	.0468	.0324	.0109	.0172	.0231	.0151	.0170	.0262	.0234	.0959	.0000	.0513	.0513	.0435								
21	.0477	.0396	.0256	.0067	.0165	.0144	.0030	.0194	.0276	.0093	.0548	.0000	.0256	.0256	.0365								
22	.0363	.0247	.0157	.0126	.0087	.0118	.0060	.0208	.0238	.0093	.0274	.0000	.0256	.0000	.0229								
23	.0250	.0163	.0099	.0059	.0075	.0036	.0030	.0118	.0202	.0047	.0411	.0000	.0256	.0000	.0151								

Note: The factors in this table are used in the same way as illustrated in the example shown on Table 26.

Figure 1. Responses to use of seasonal adjustment factors

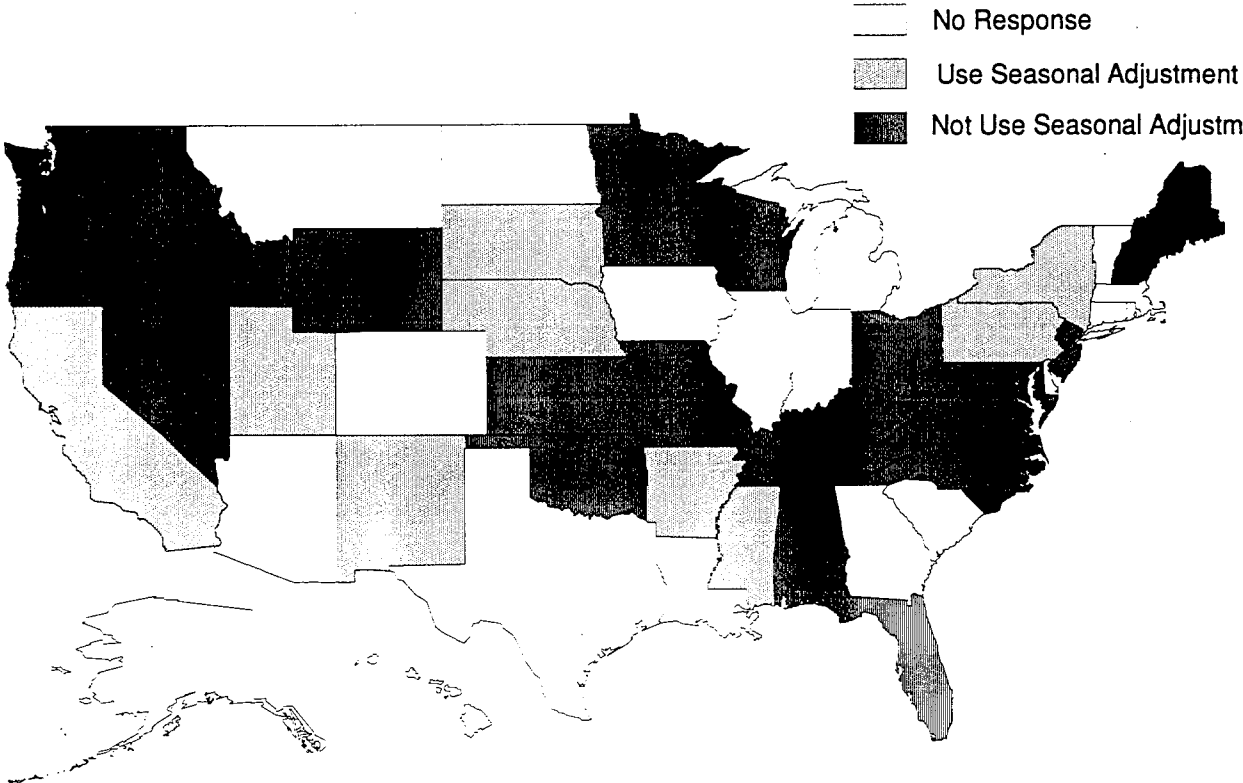


Figure 2. Rural Interstates and Parkways (VT-1 to VT-15); Sunday

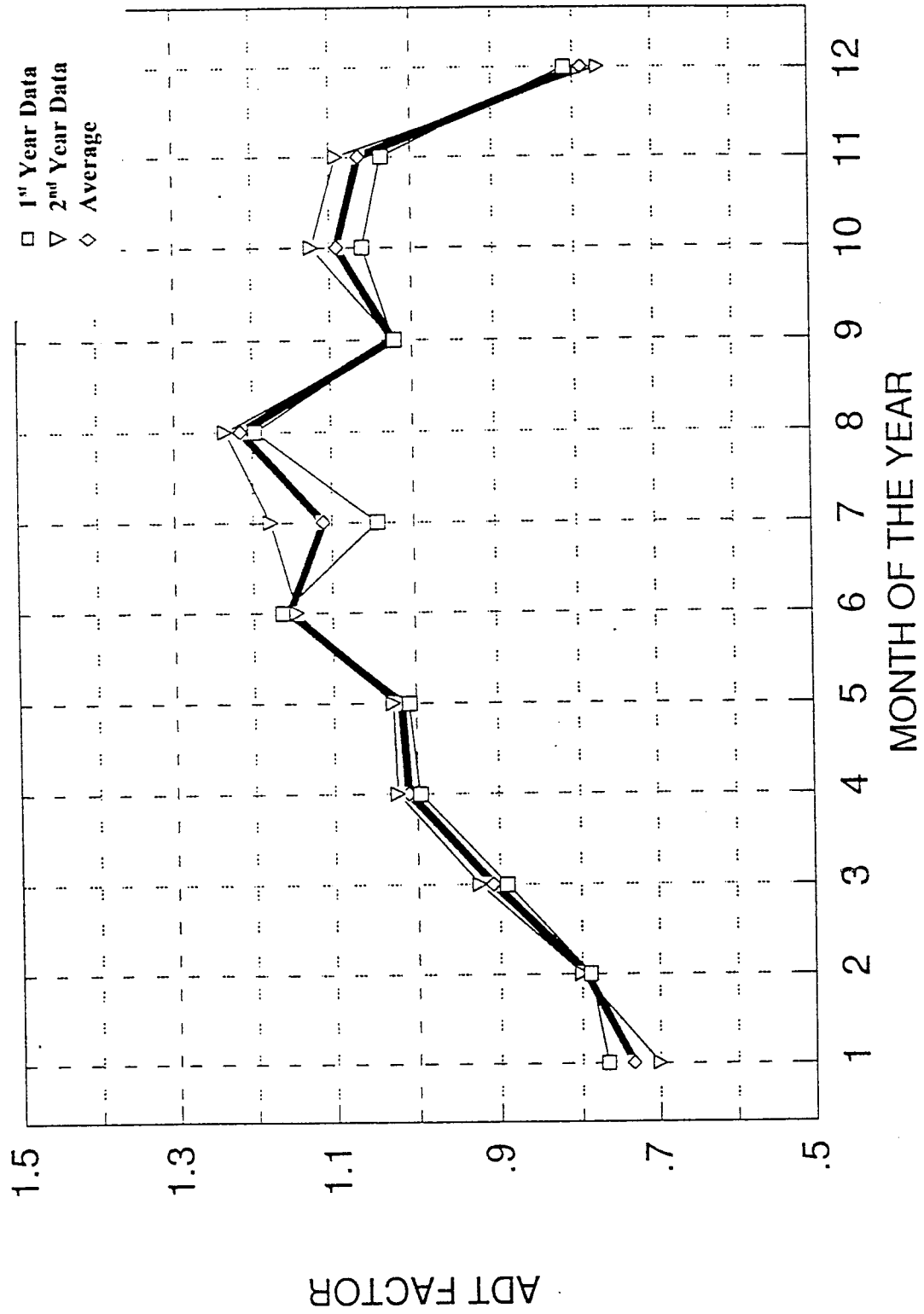


Figure 3. Rural Interstates and Parkways (VT-1 to VT-15); Monday

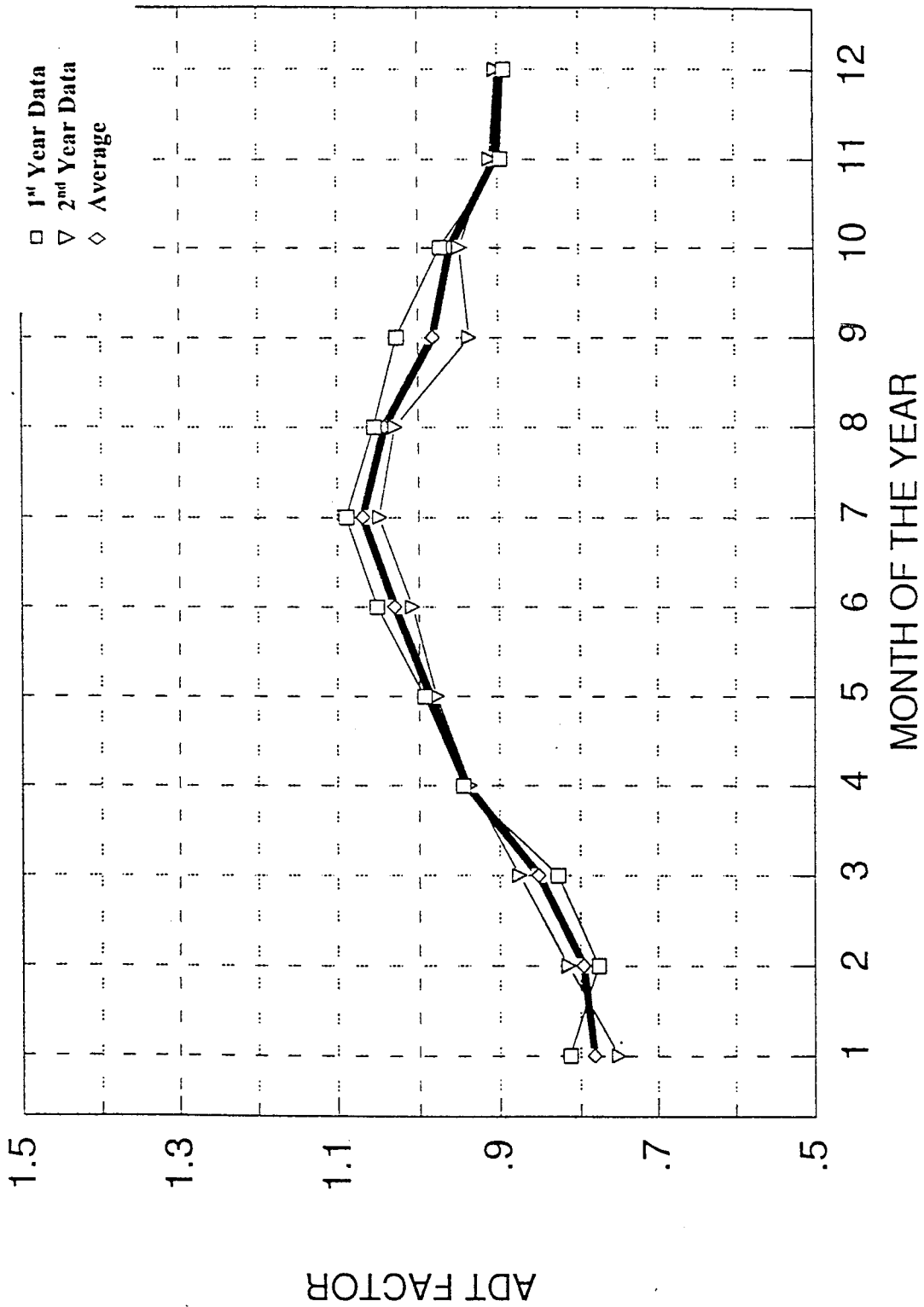


Figure 4. Rural Interstates and Parkways (VT-1 to VT-15); Tuesday

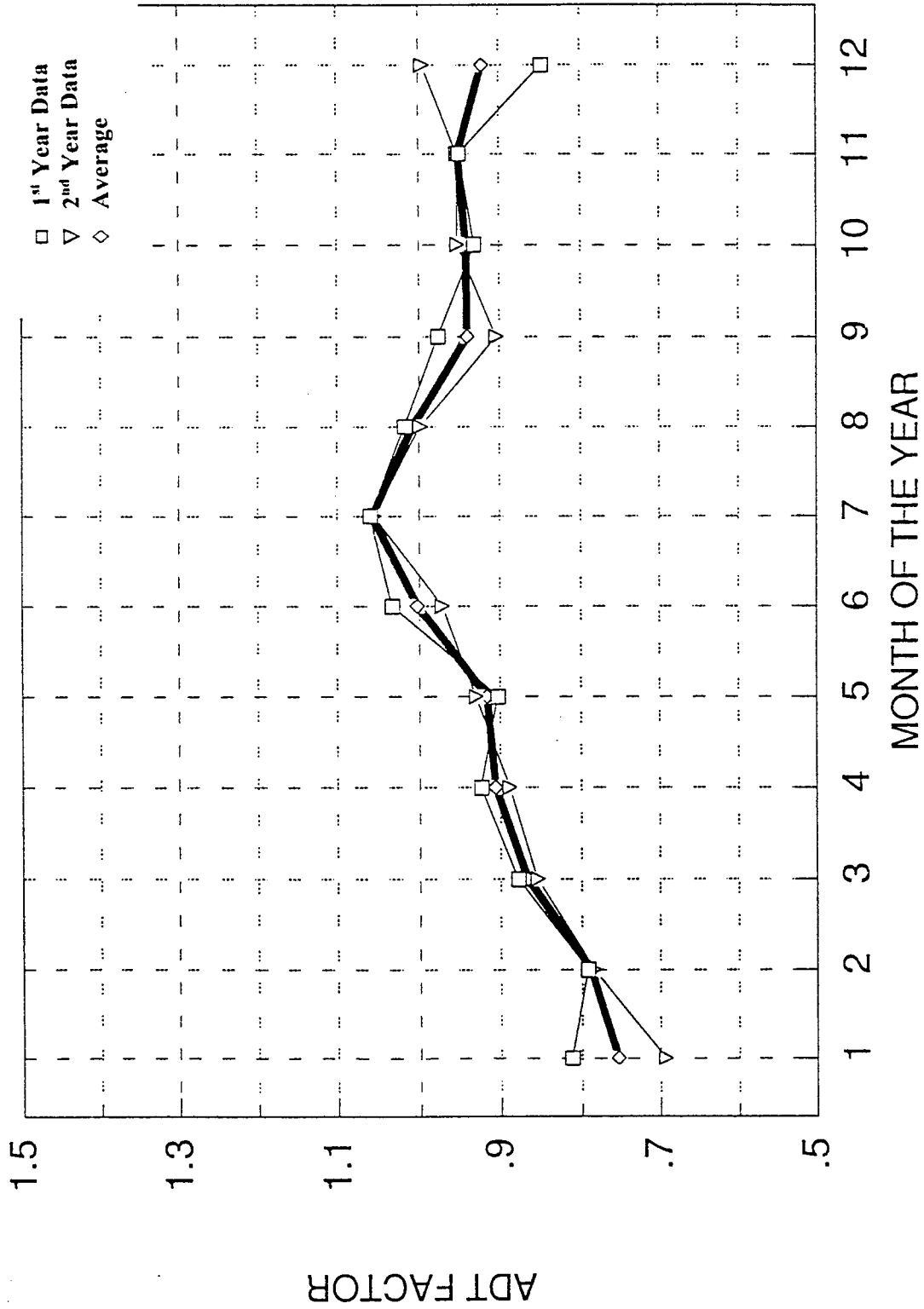


Figure 5. Rural Interstates and Parkways (VT-1 to VT-15); Wednesday

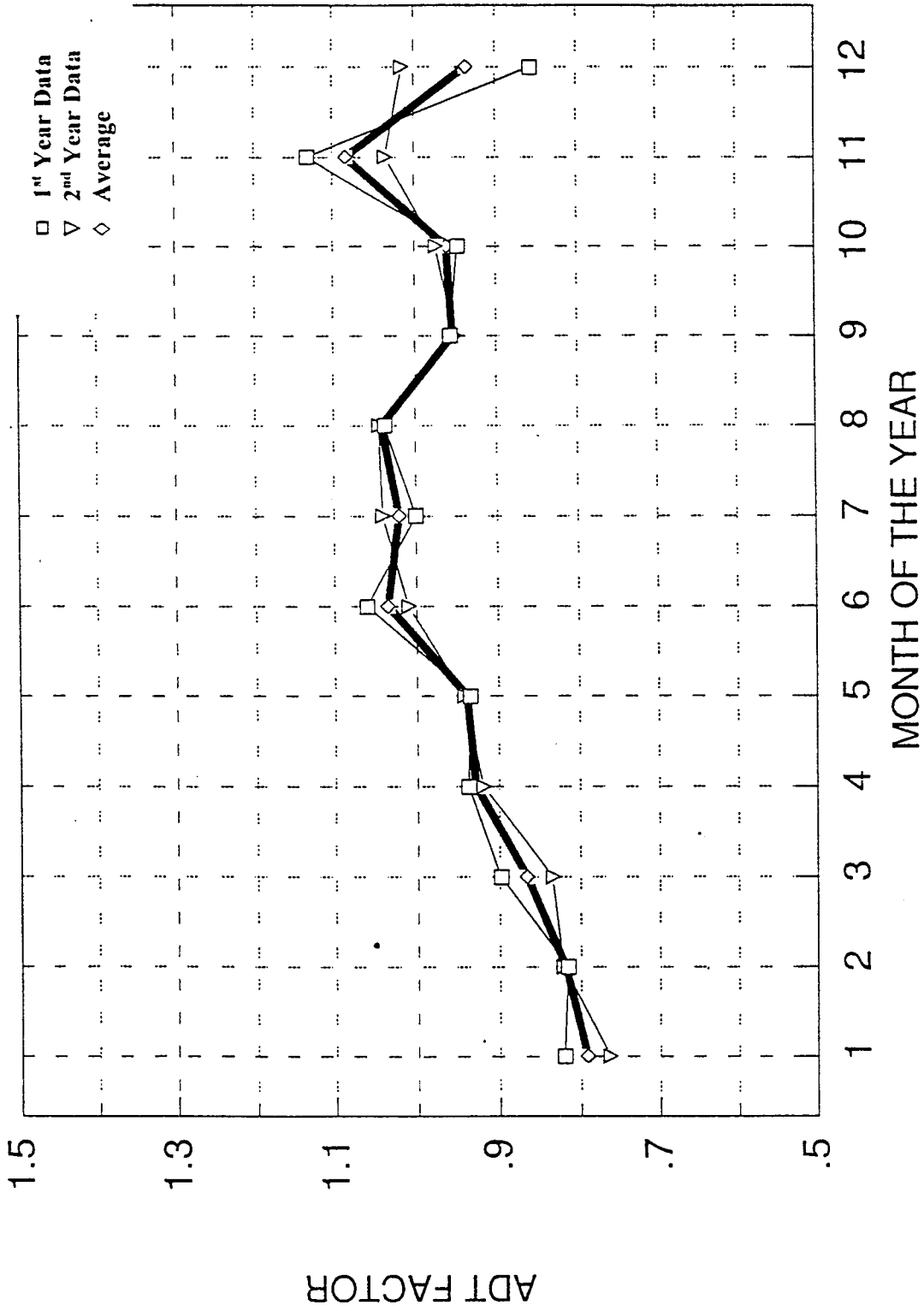


Figure 6. Rural Interstates and Parkways (VT-1 to VT-15); Thursday

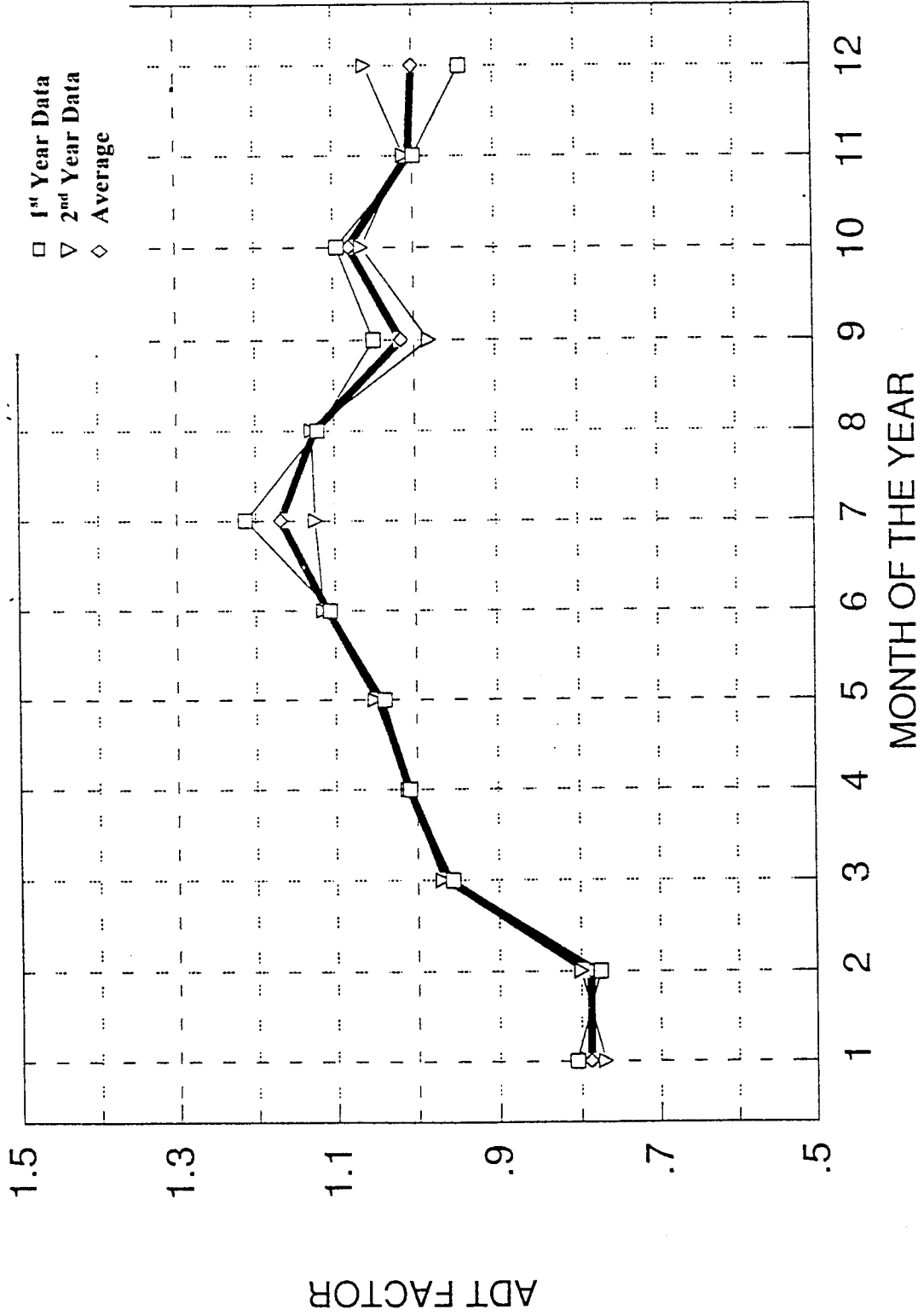


Figure 7. Rural Interstates and Parkways (VT-1 to VT-15); Friday

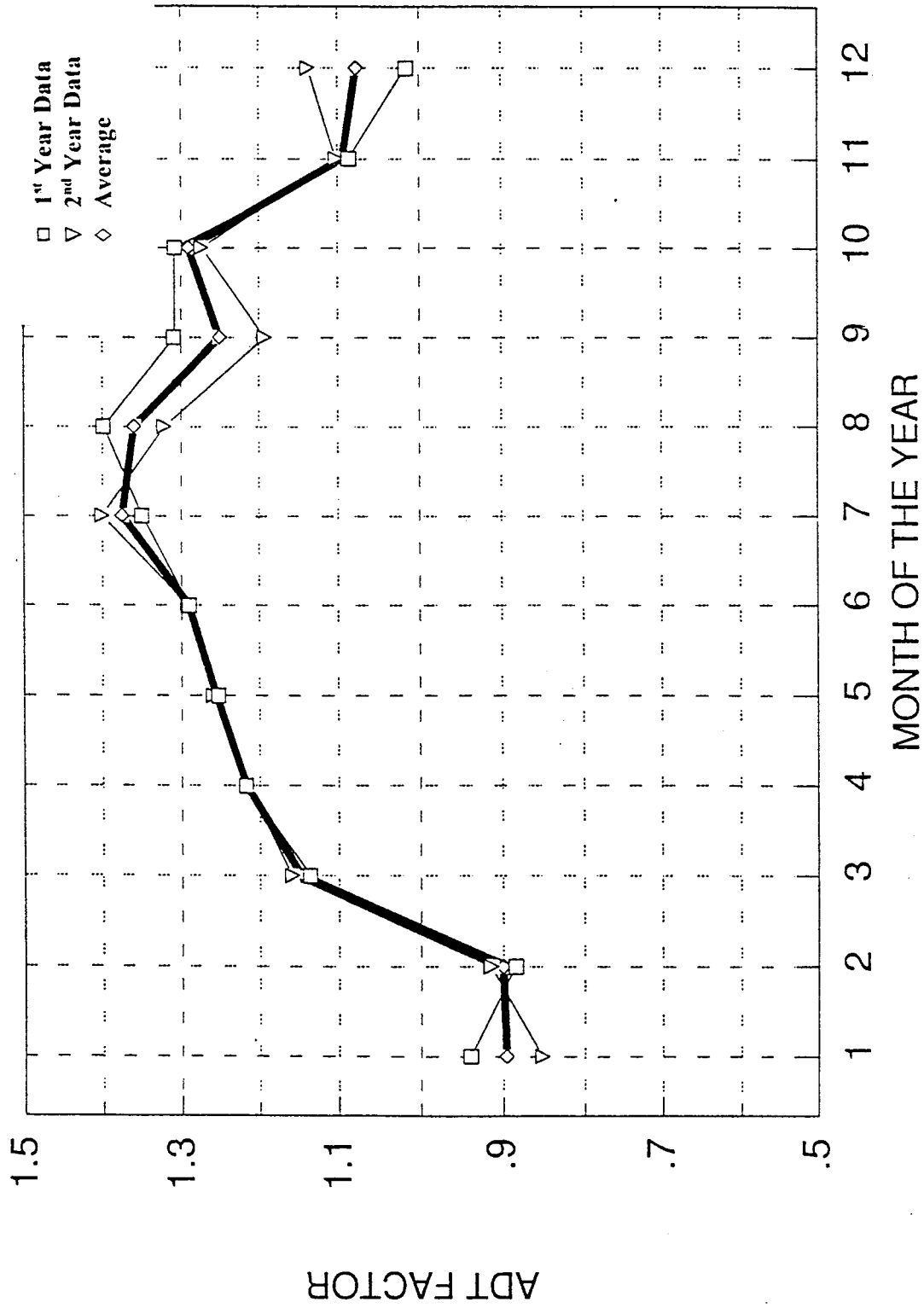


Figure 8. Rural Interstates and Parkways (VT-1 to VT-15); Saturday

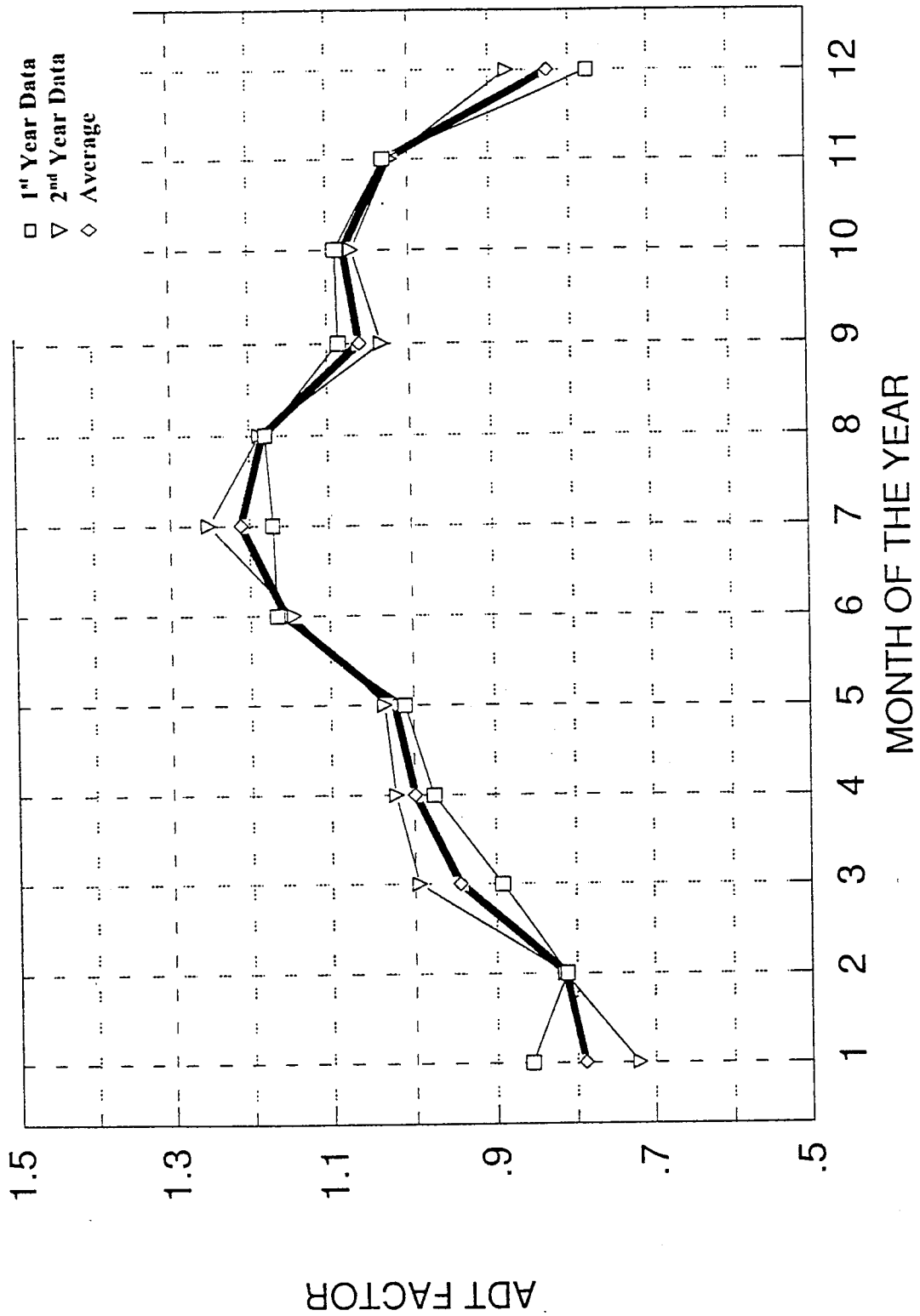


Figure 9. Variation of Monthly ADT Factor, Interstates and Parkways
Vehicle Type 1, Motorcycle

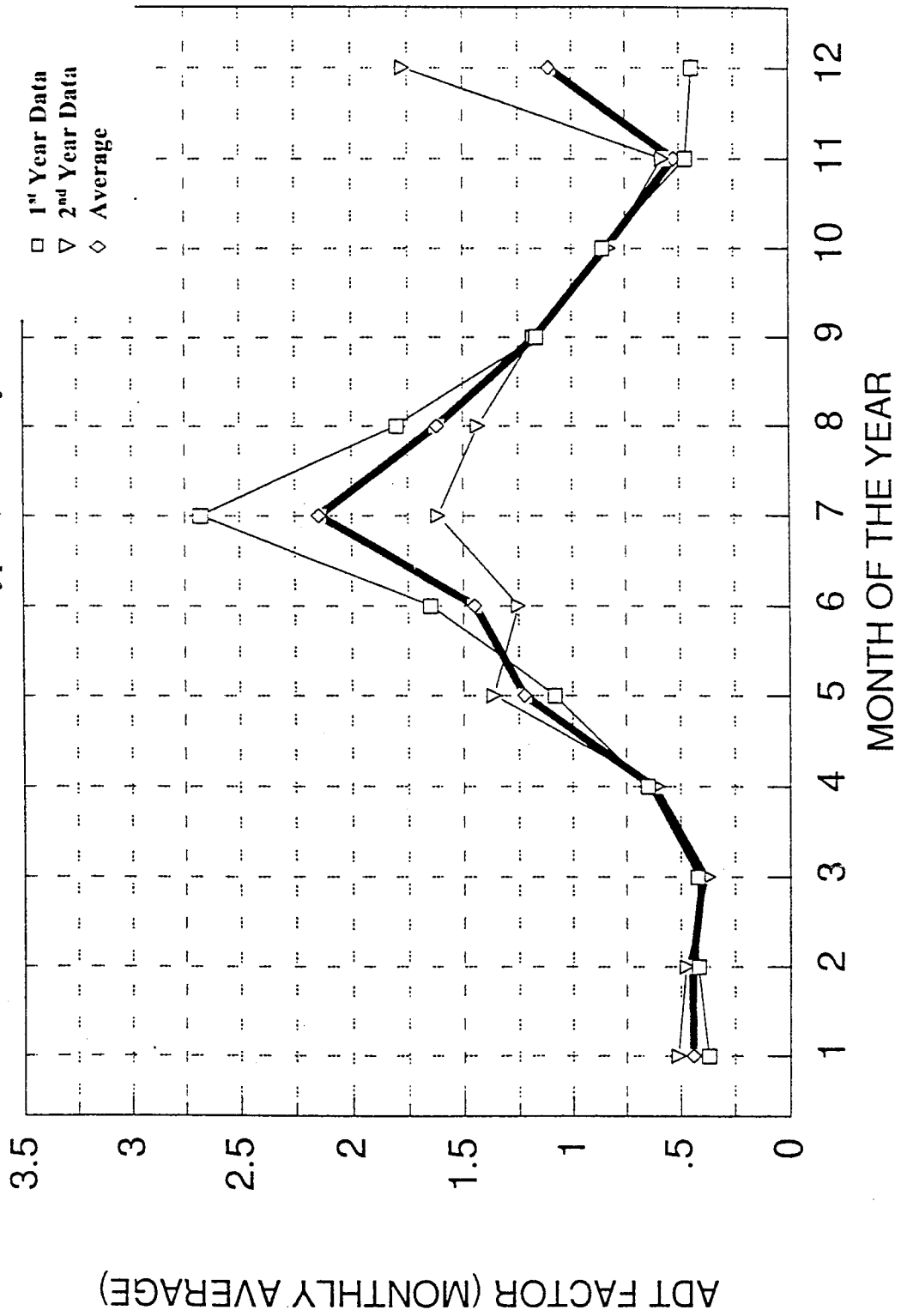


Figure 10. Variation of Monthly ADT Factor, Interstates and Parkways
Vehicle Type 2, Car

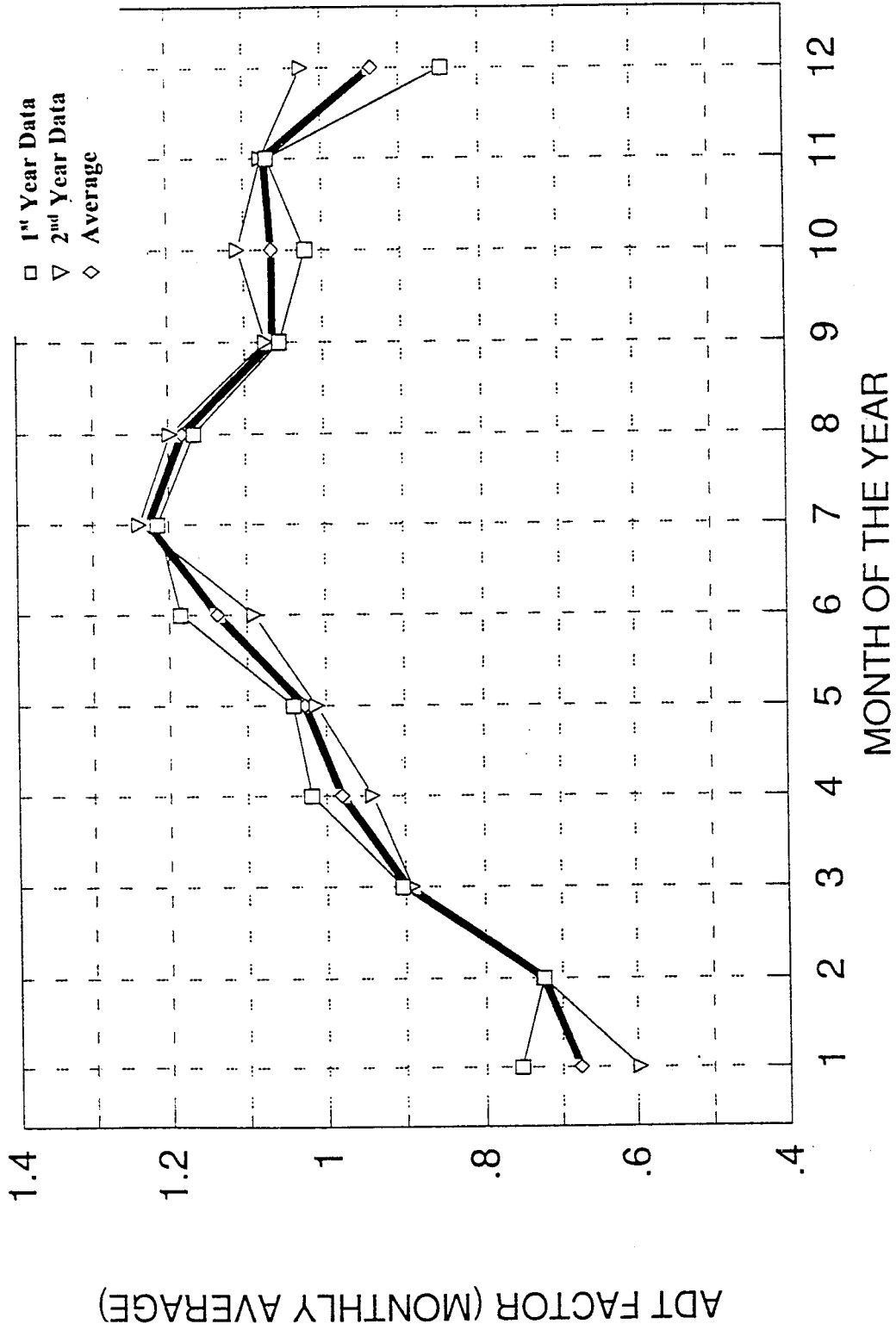


Figure 11. Variation of Monthly ADT Factor, Interstates and Parkways
Vehicle Type 3, Pickup

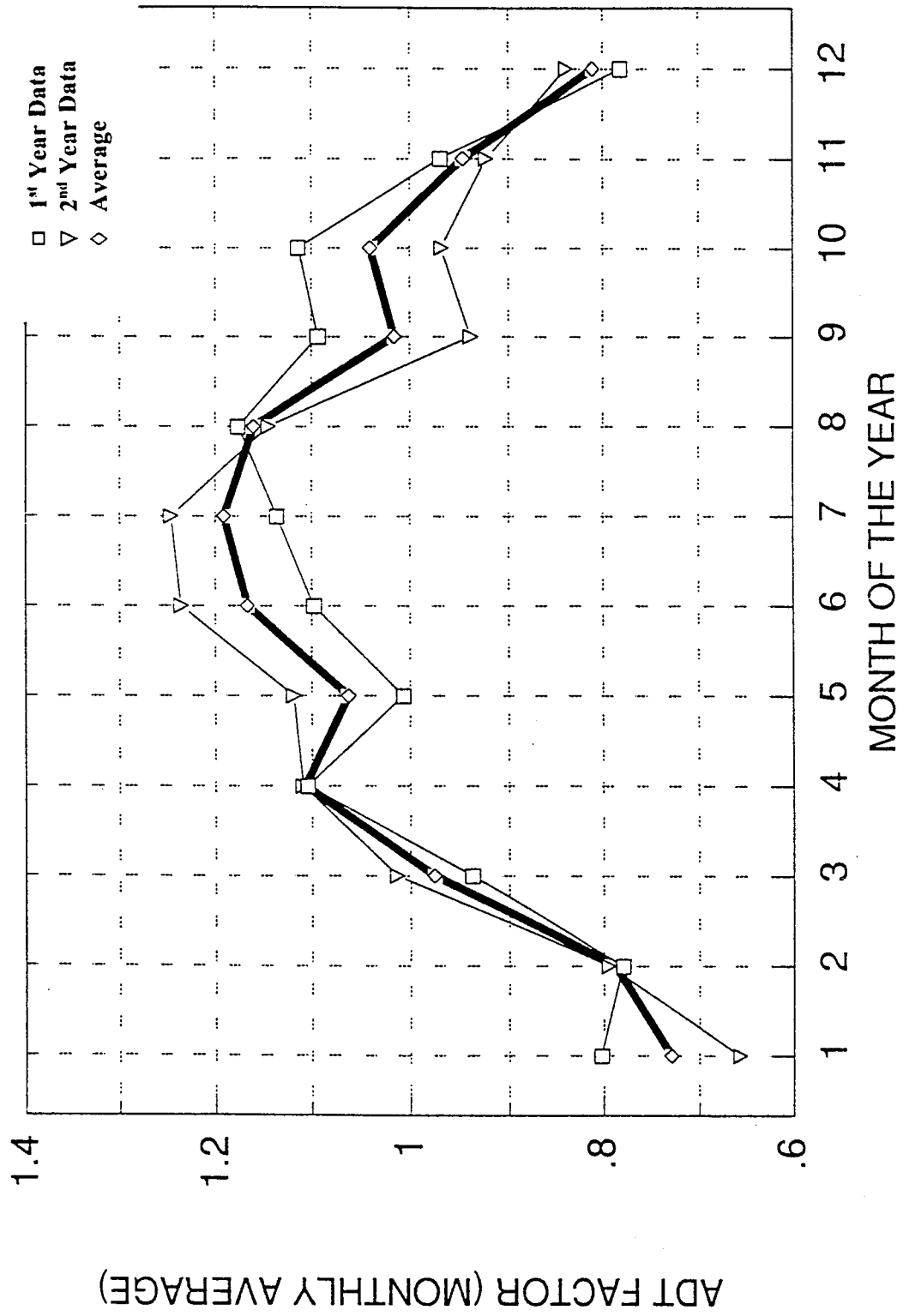


Figure 12. Variation of Monthly ADT Factor, Interstates and Parkways
Vehicle Type 4, Bus

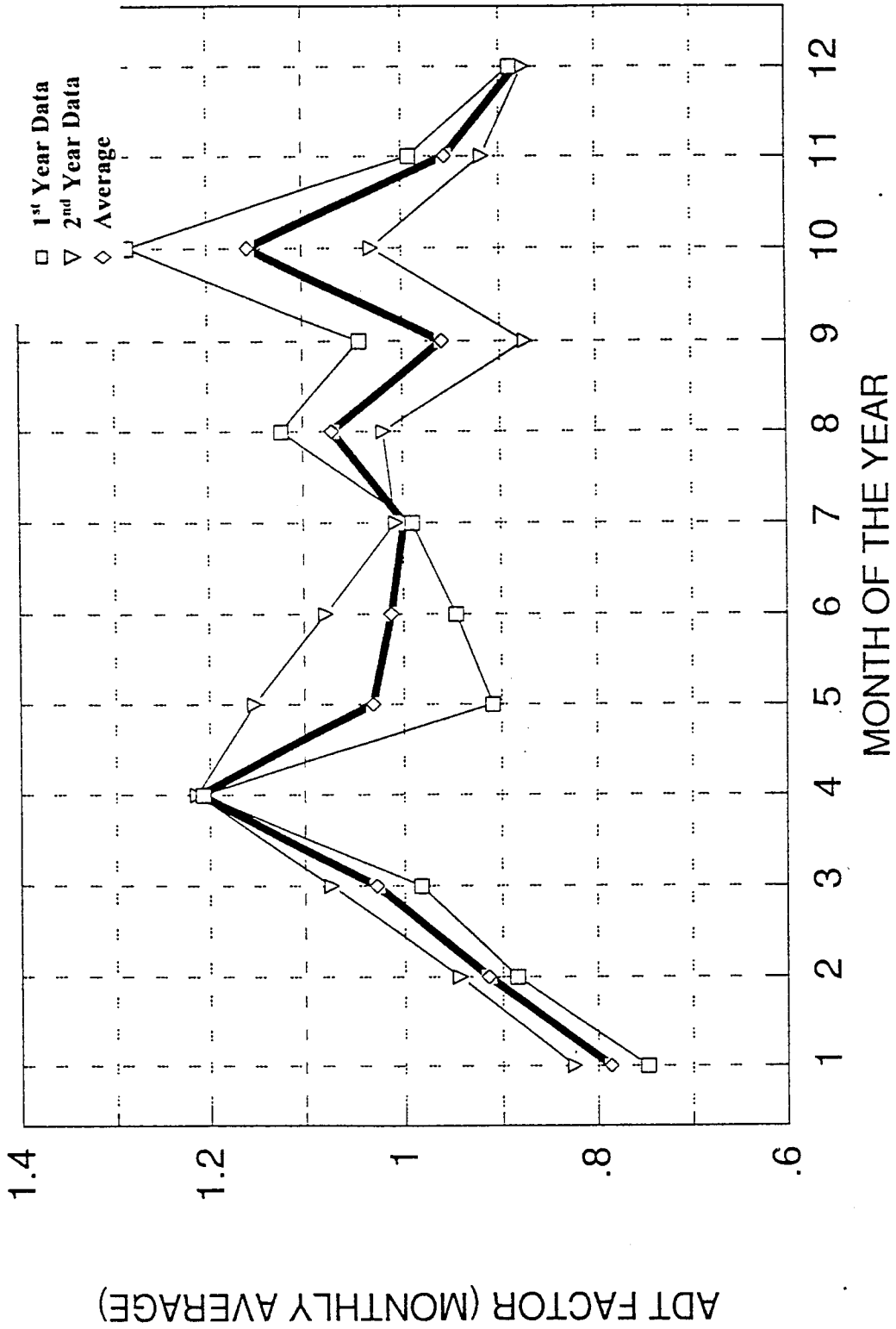


Figure 13. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 5, 2-Axle, 6-Tire

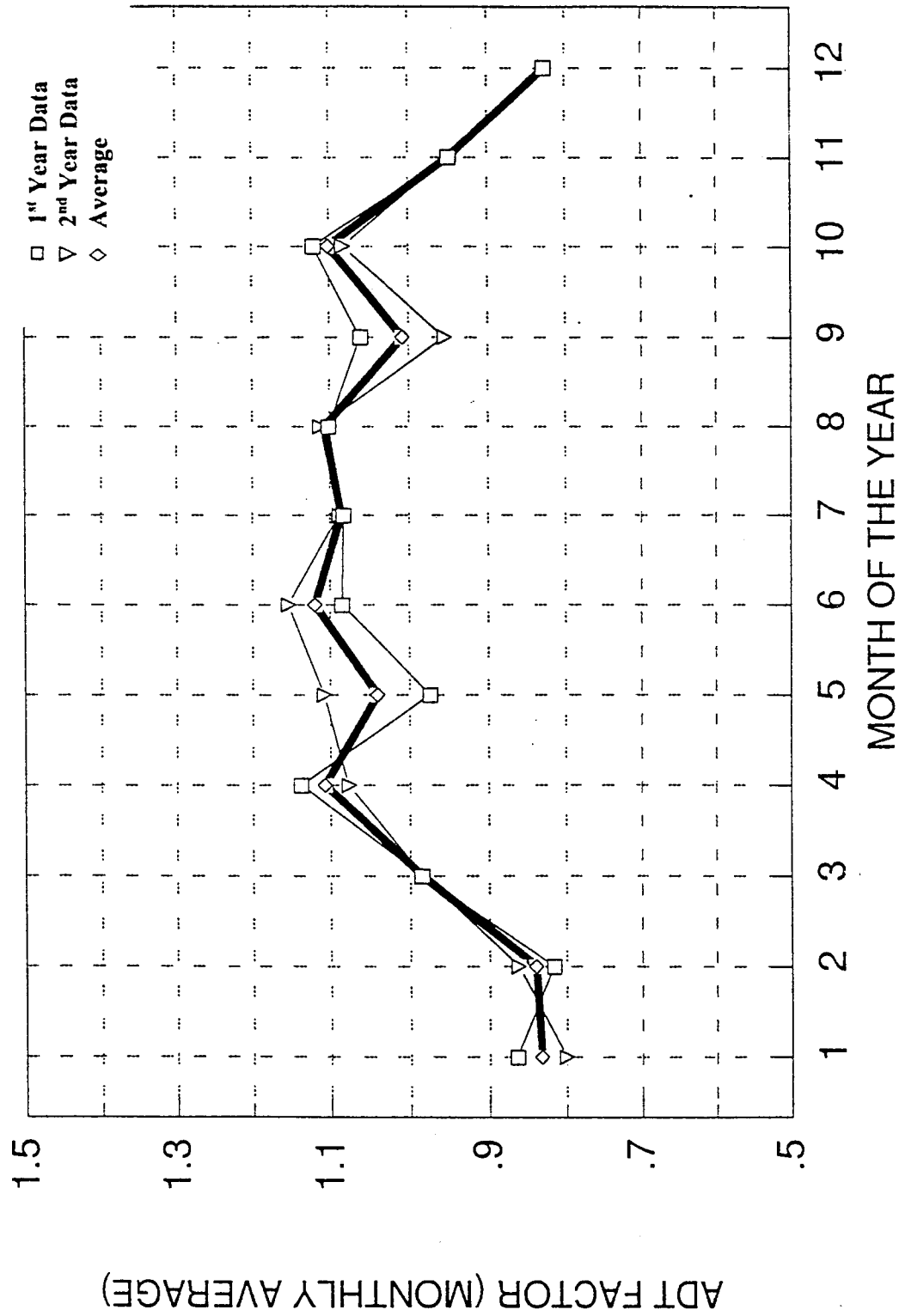


Figure 14. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 6, 3-Axle, Single Unit

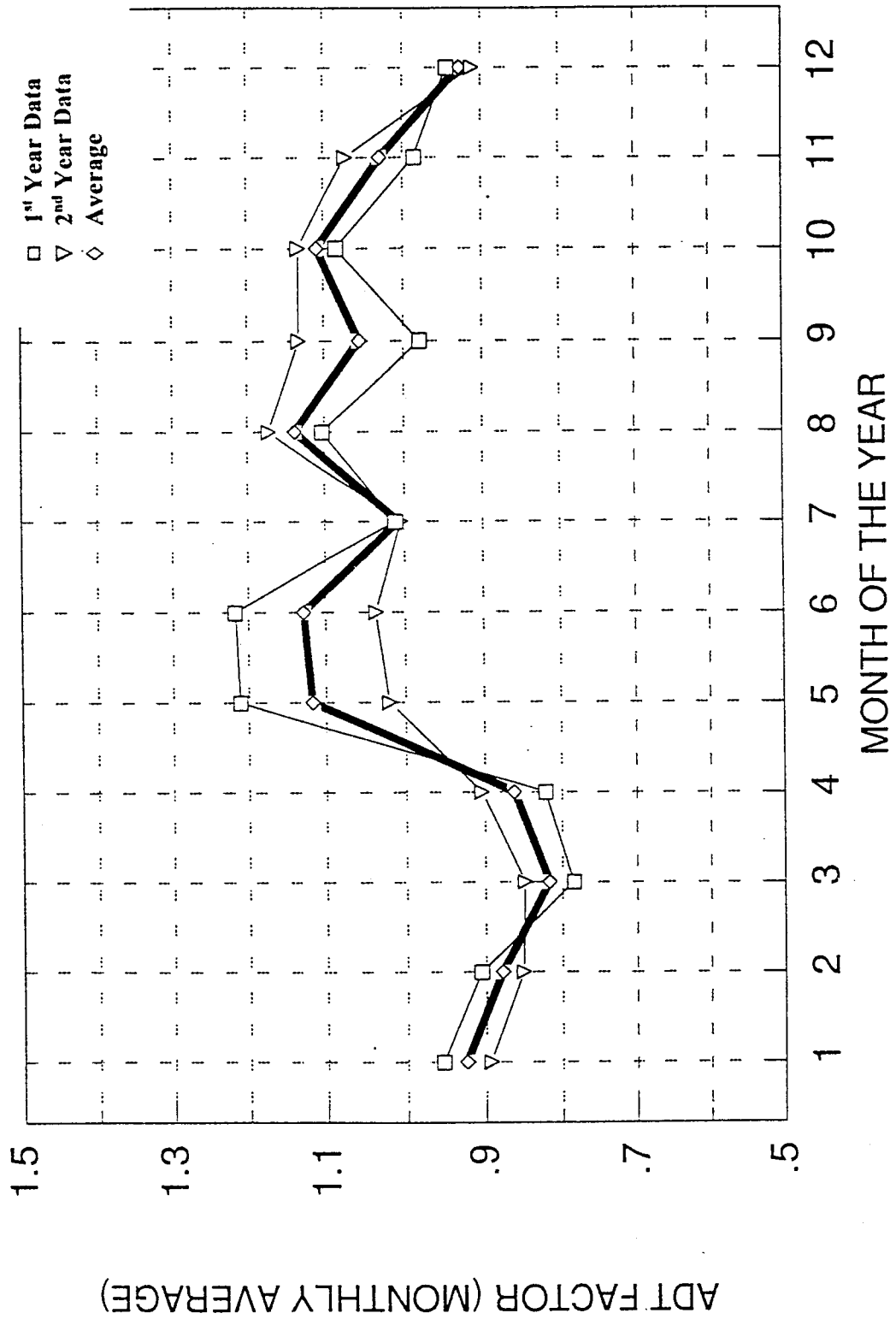


Figure 15. Variation of Monthly ADT Factor, Interstates and Parkways
Vehicle Type 7, 4-Axle, Single Unit

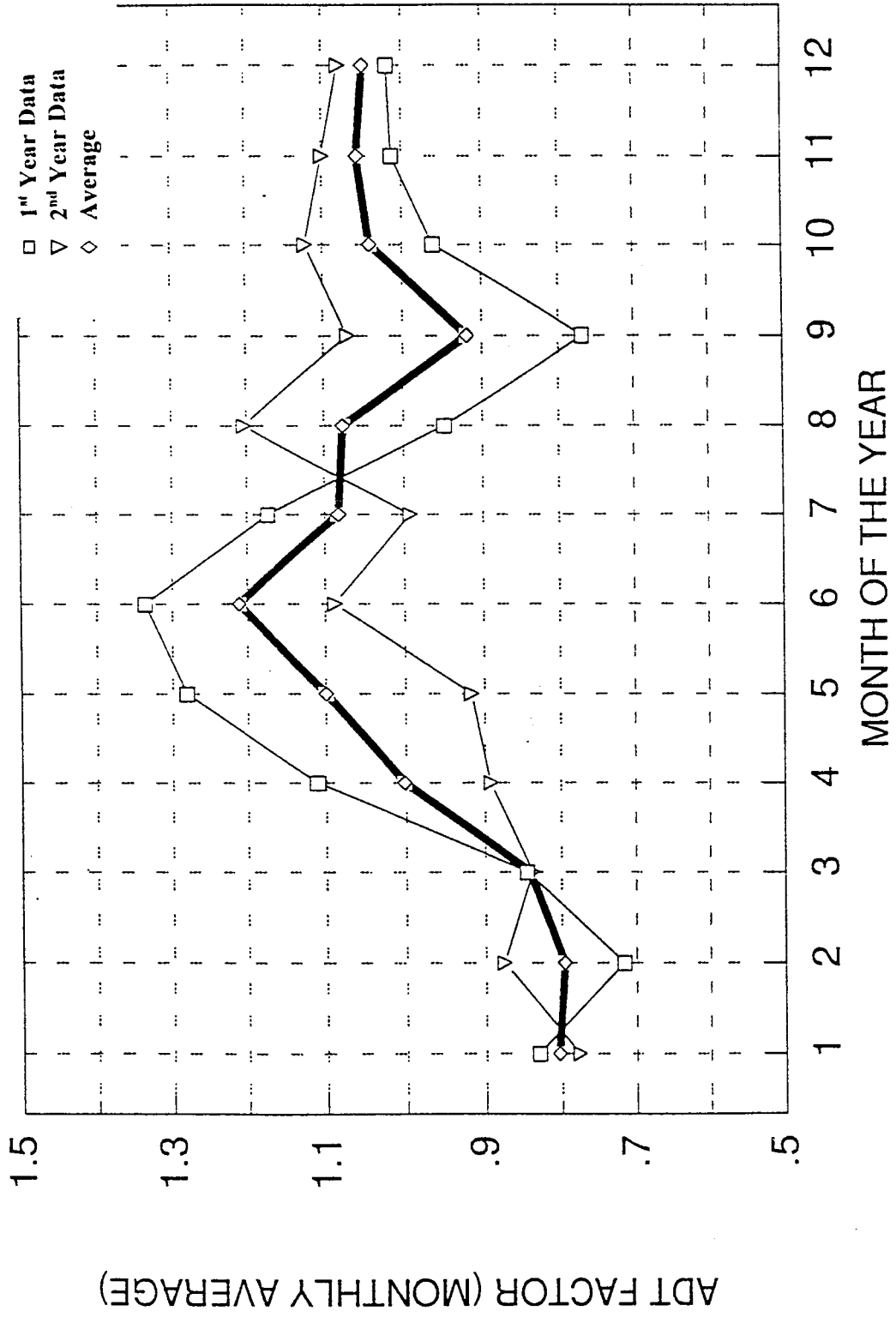


Figure 16. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 8, 2S1, 3S1, and 2S2

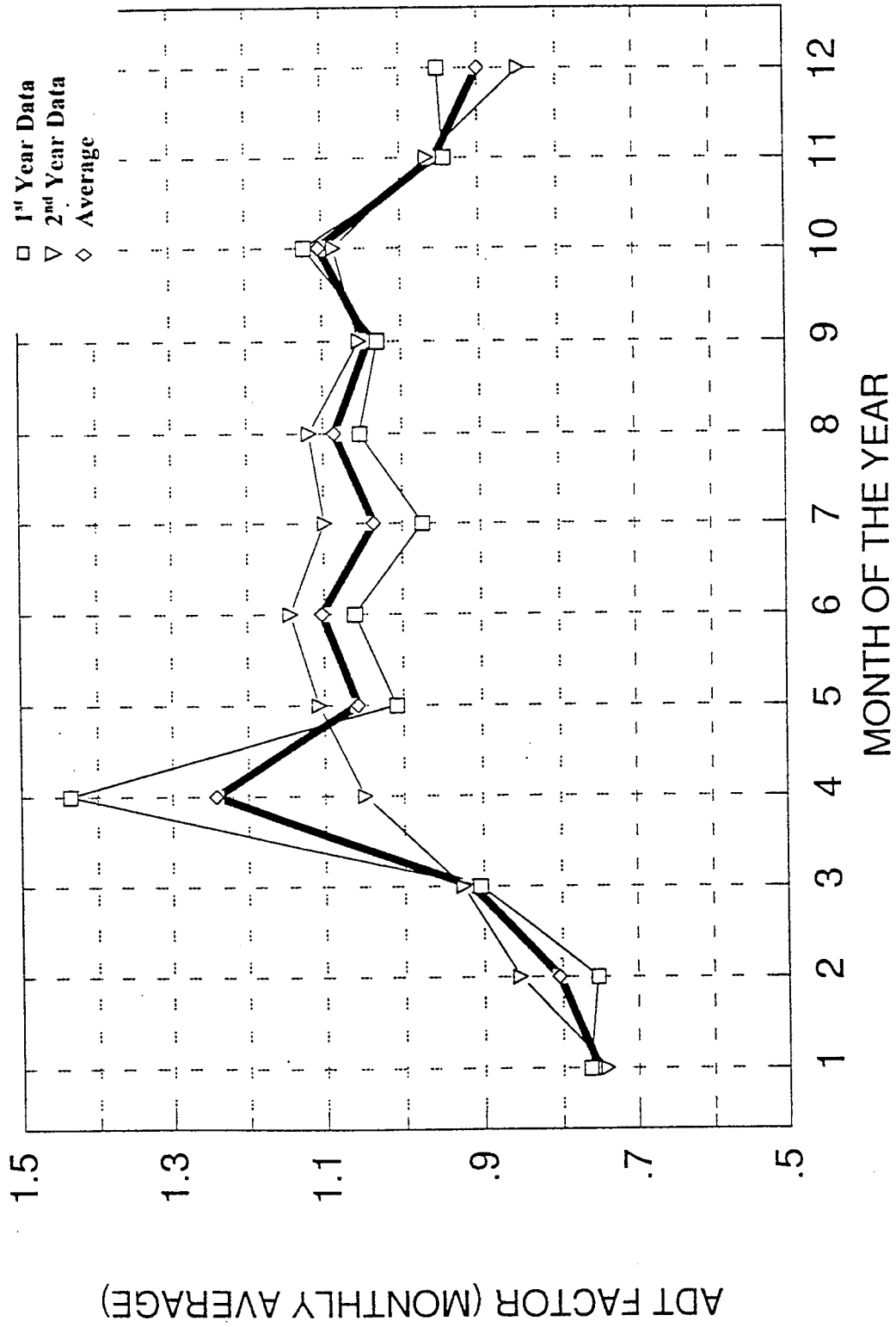


Figure 17. Variation of Monthly ADT Factor, Interstates and Parkways
Vehicle Type 9, 3S2 or 3-Axle with Trailer

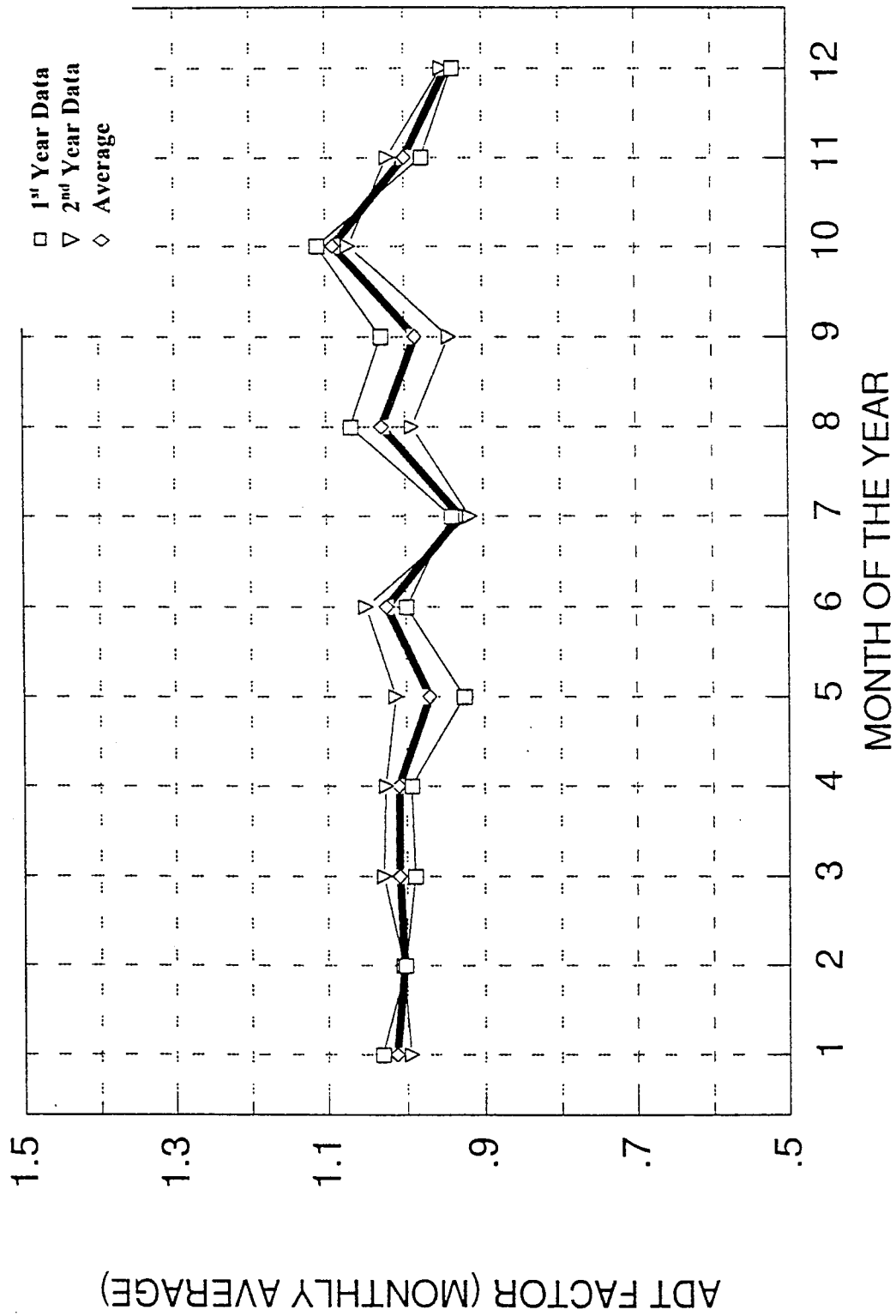


Figure 18. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 10, 6 or 7-Axle with Single Trailer

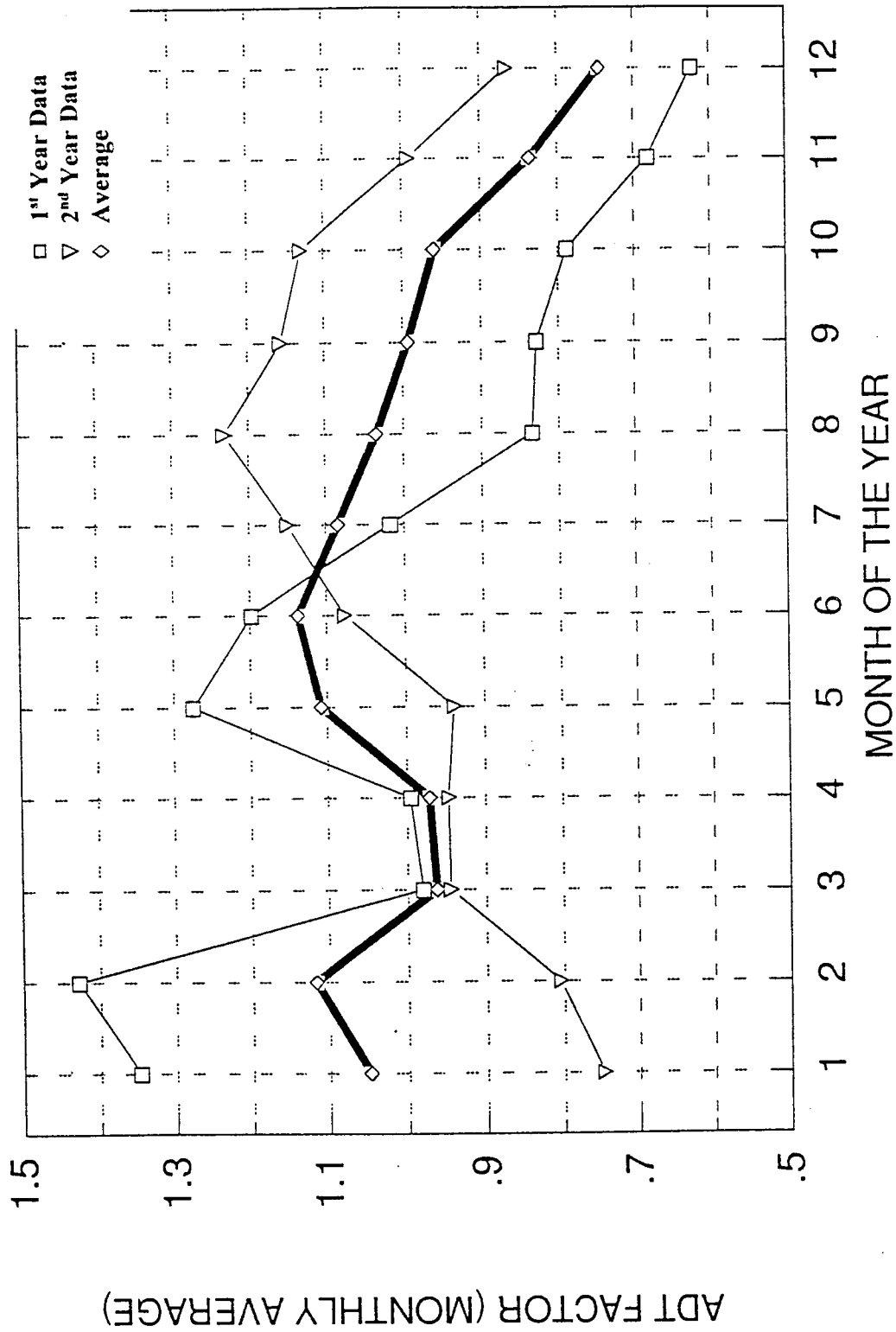


Figure 19. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 11, 5-Axle, Multi-Trailer

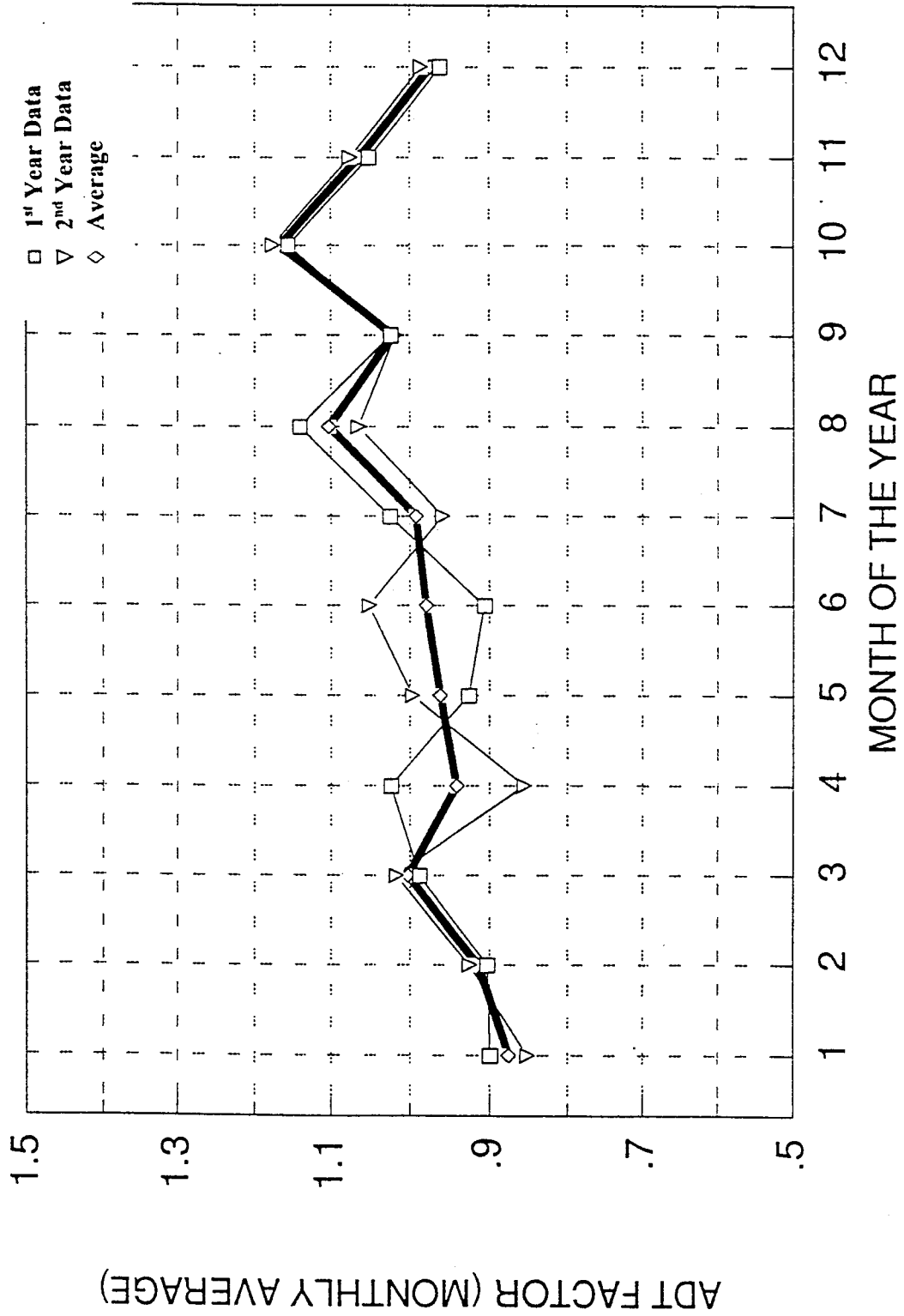


Figure 20. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 12, 6-Axle, Multi-Trailer

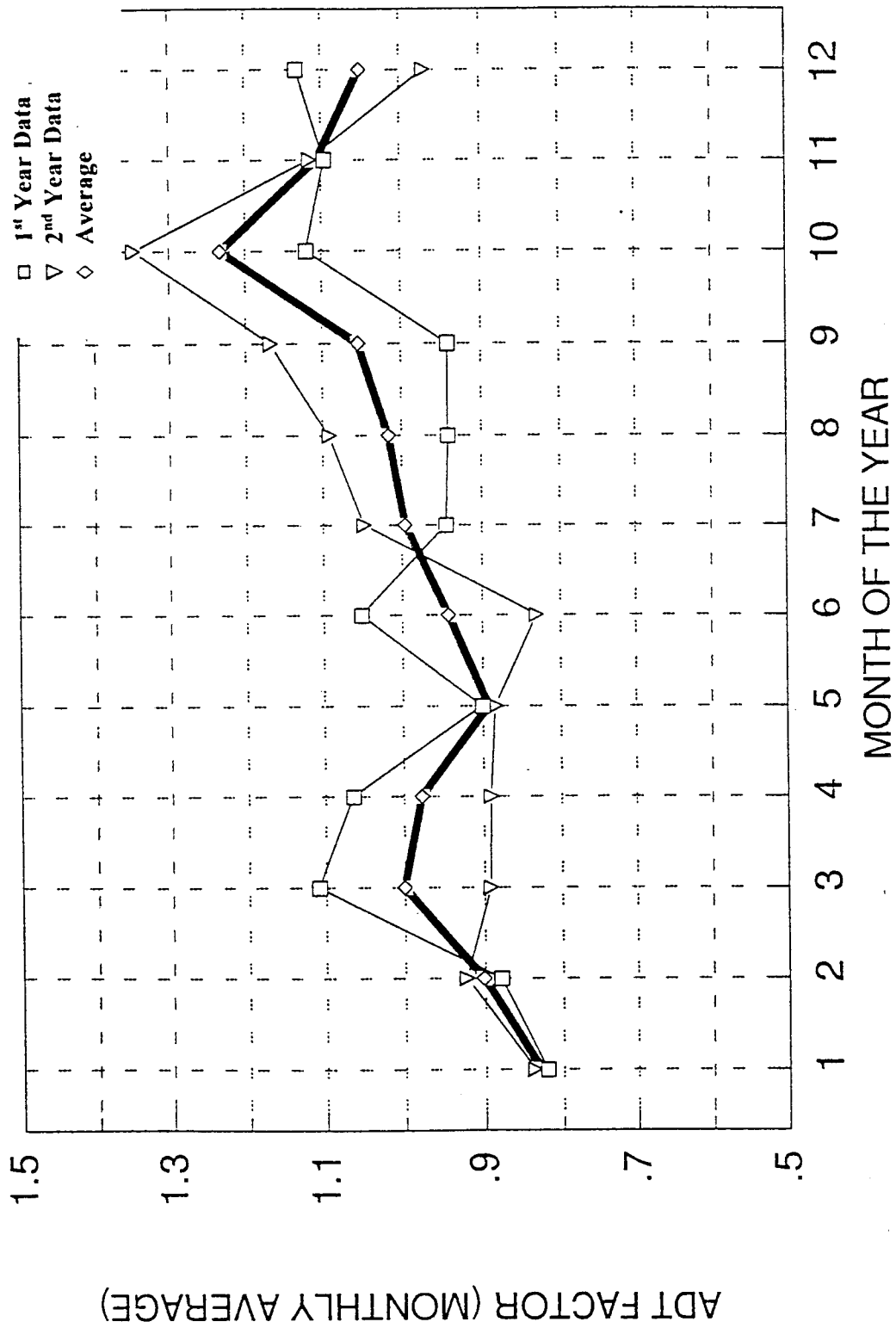


Figure 21. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 13, 7-Axle, Multi-Trailer

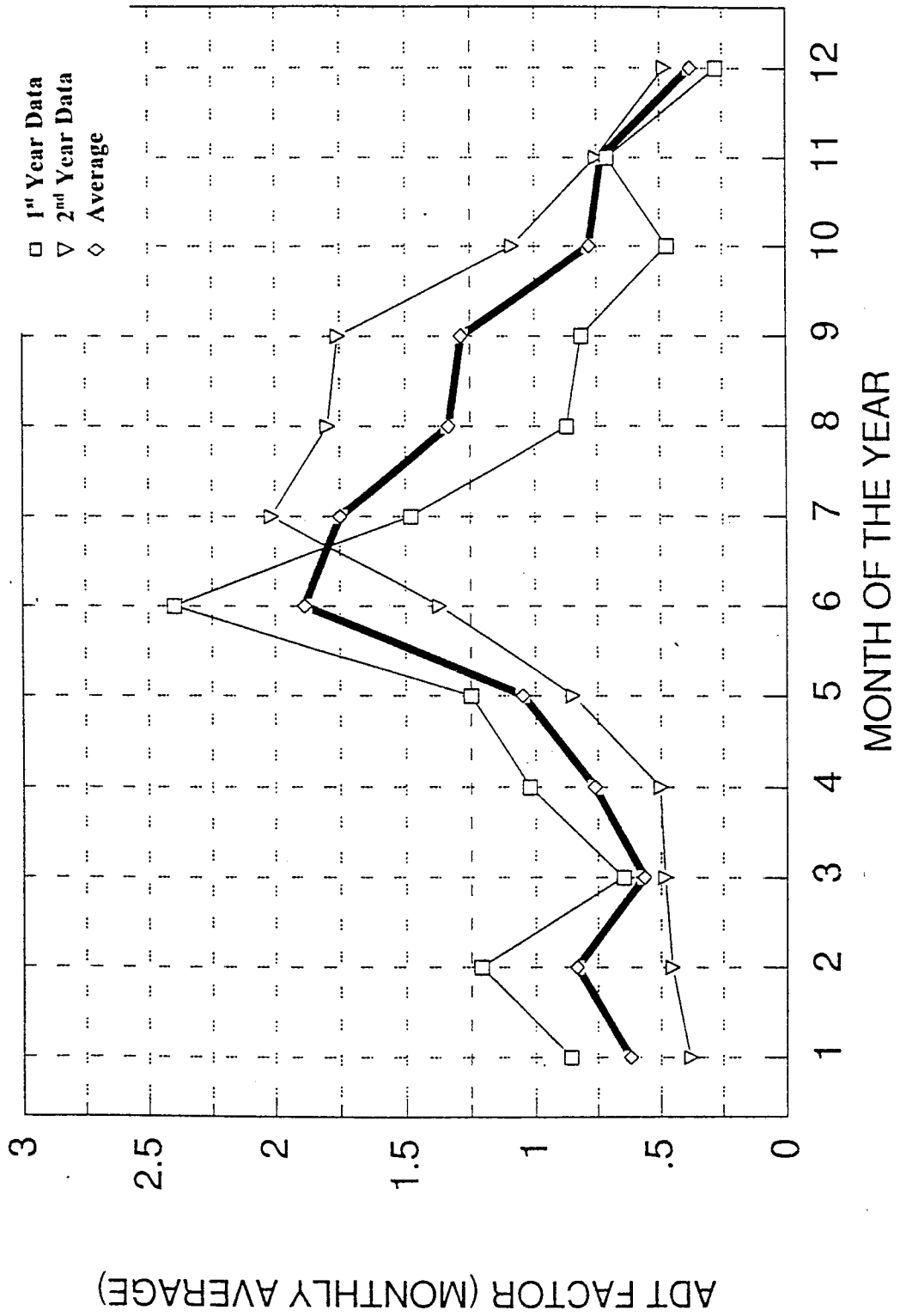


Figure 22. Variation of Monthly ADT Factor, Interstates and Parkways
 Vehicle Type 15, Unclassified

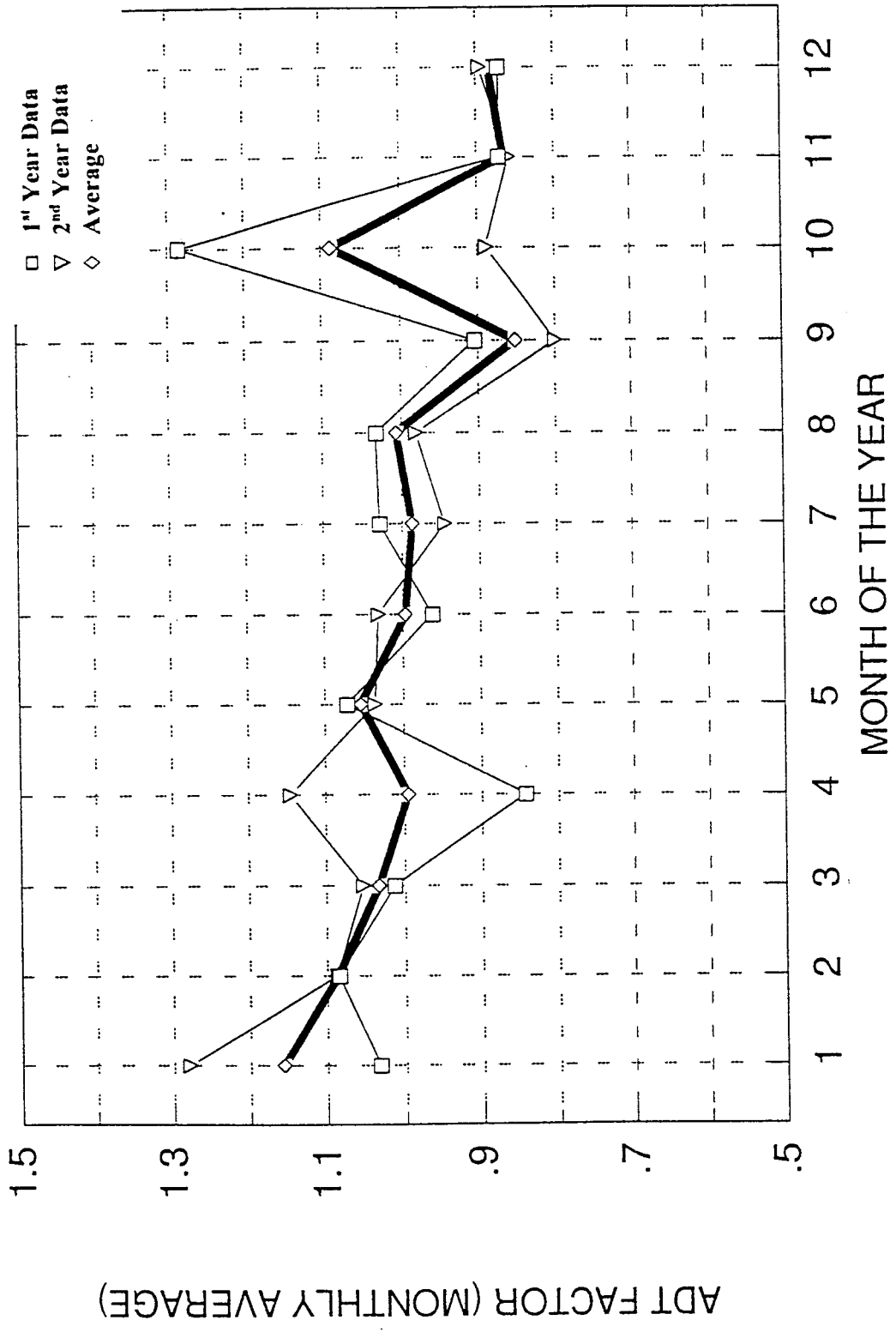


Figure 23. Rural Non-Interstates and Parkways (VT-1 to VT-15); Sunday

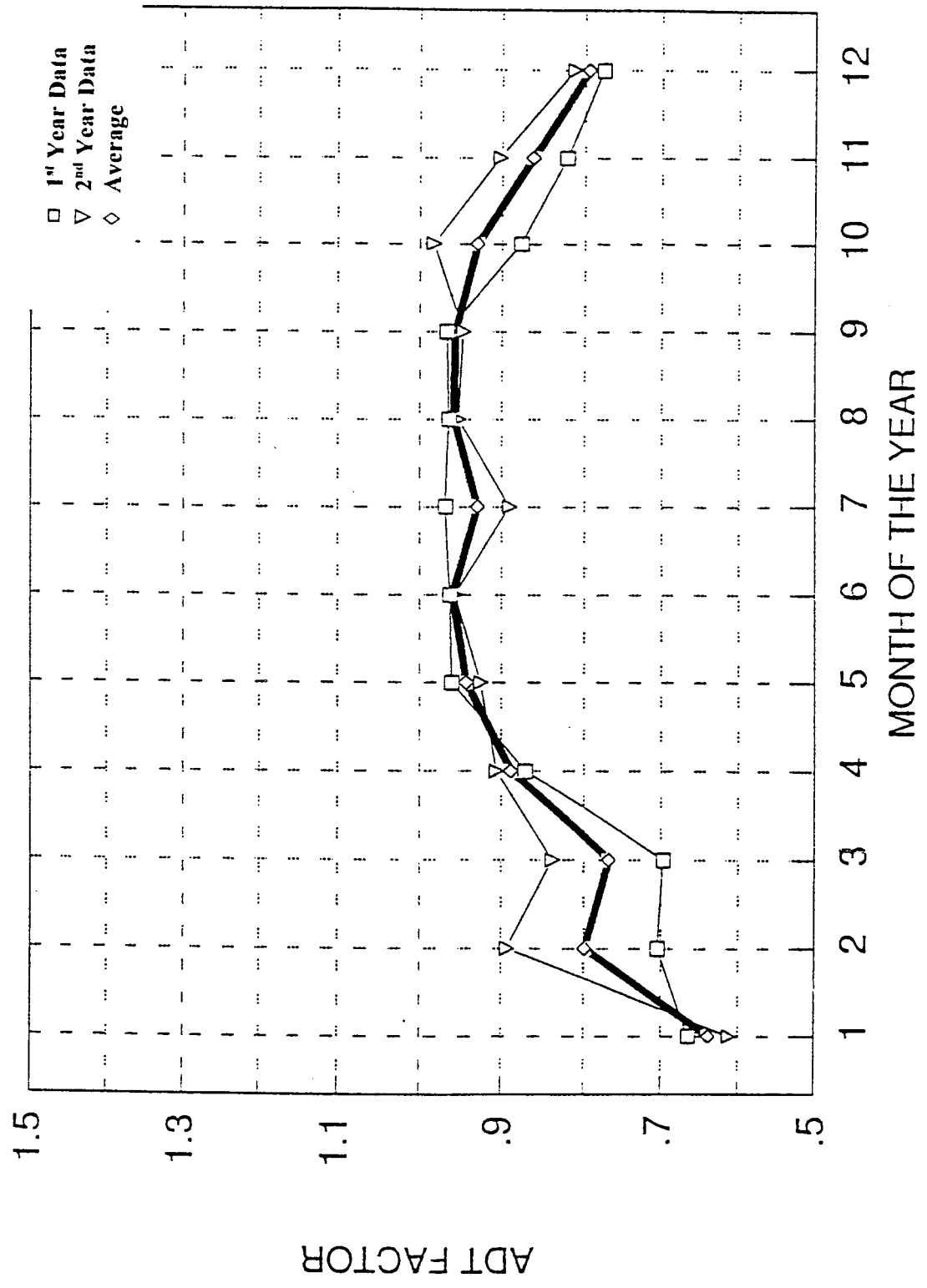


Figure 24. Rural Non-Interstates and Parkways (VT-1 to VT-15); Monday

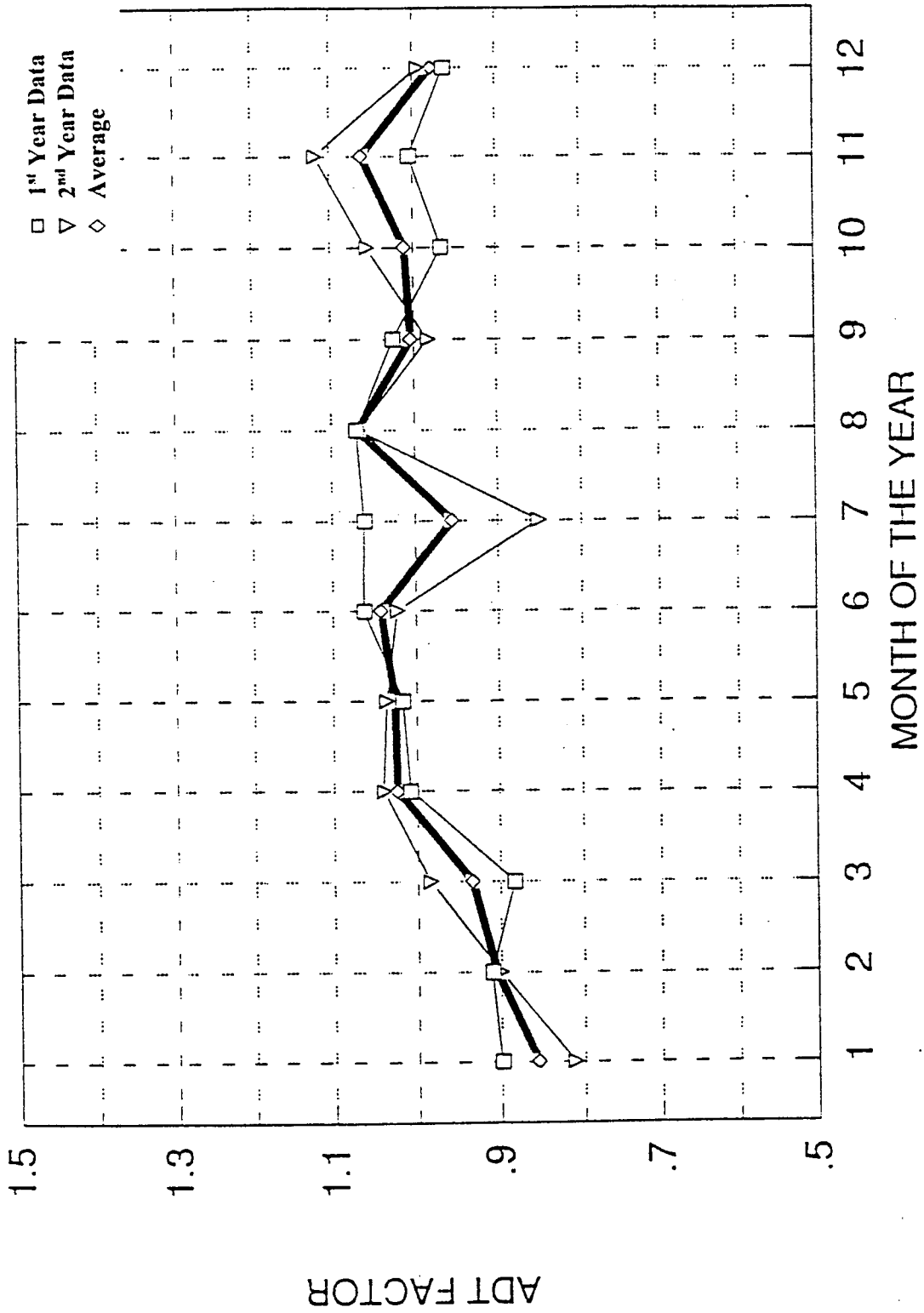


Figure 25. Rural Non-Interstates and Parkways (VT-1 to VT-15); Tuesday

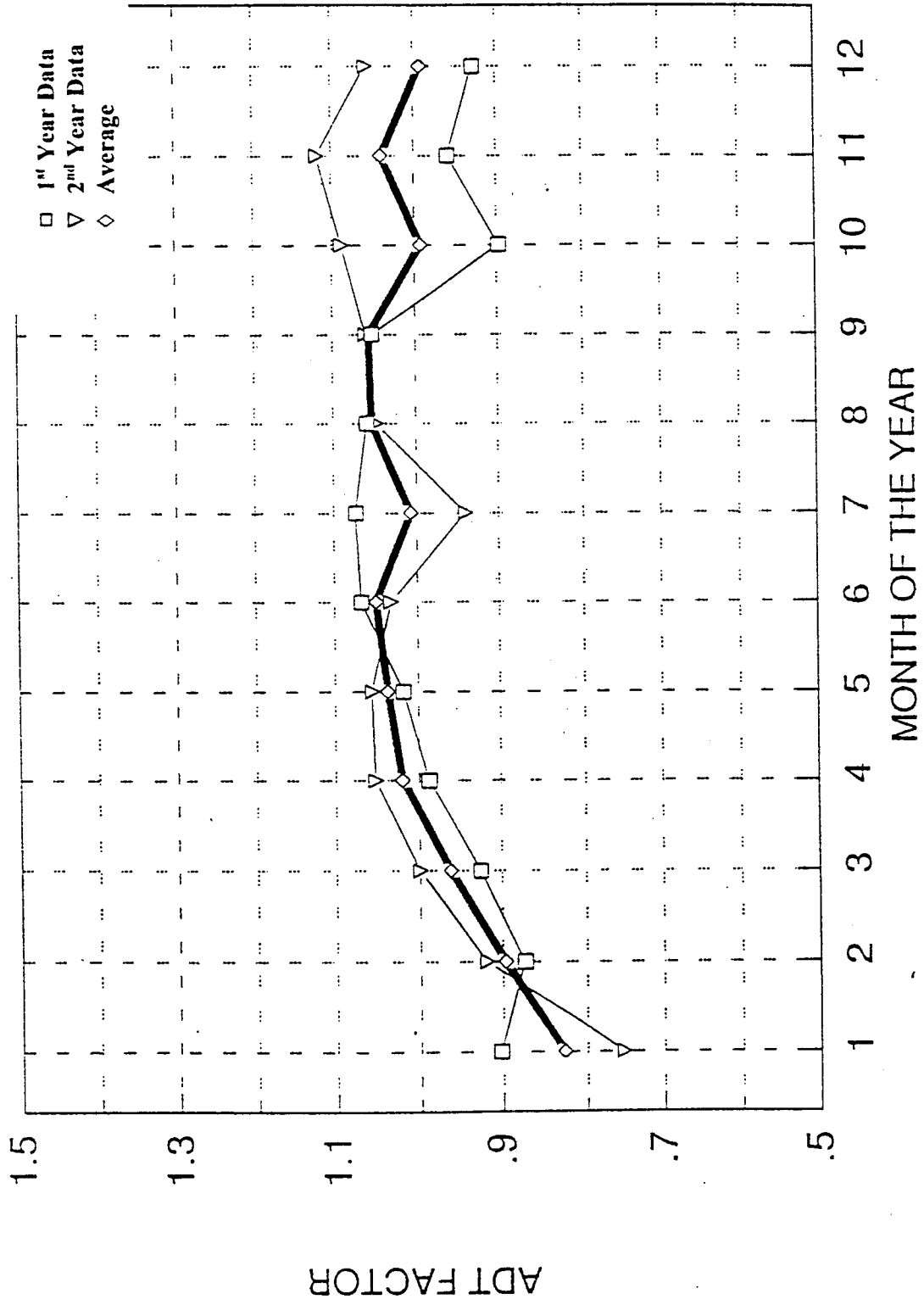


Figure 26. Rural Non-Interstates and Parkways (VF-1 to VF-15); Wednesday

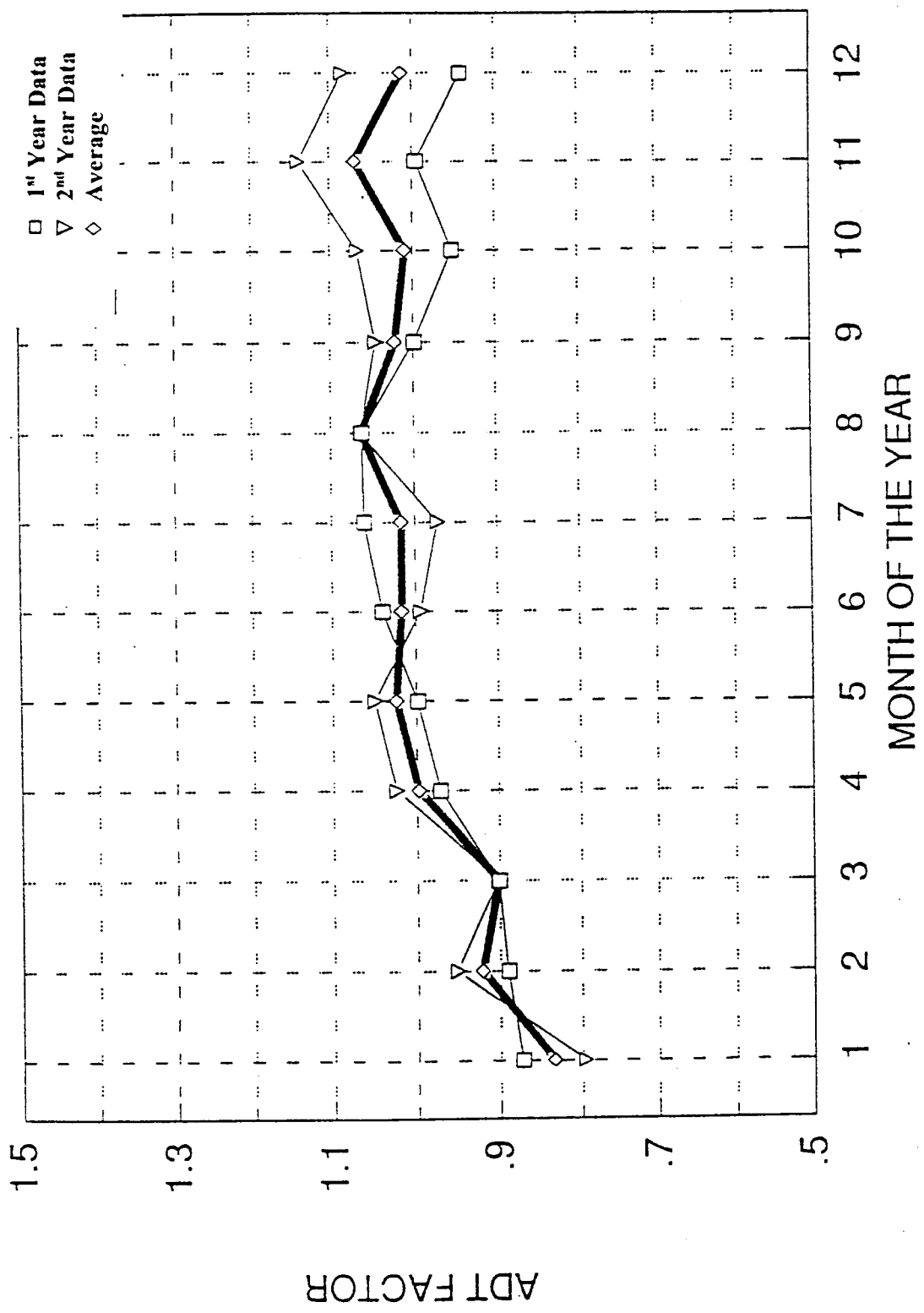


Figure 27. Rural Non-Interstates and Parkways (VF-1 to VF-15); Thursday

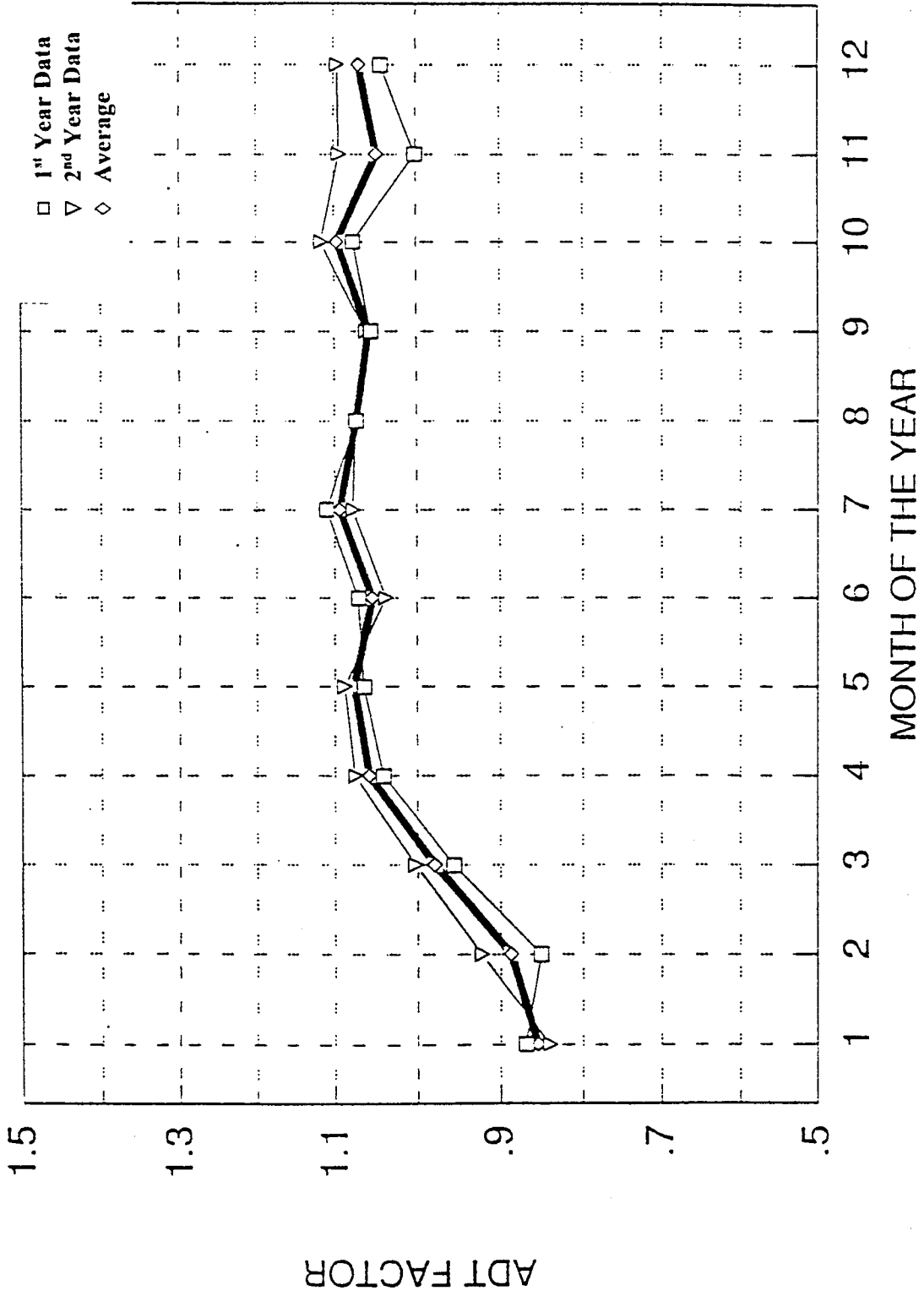


Figure 28. Rural Non-Interstates and Parkways (VT-1 to VT-15); Friday

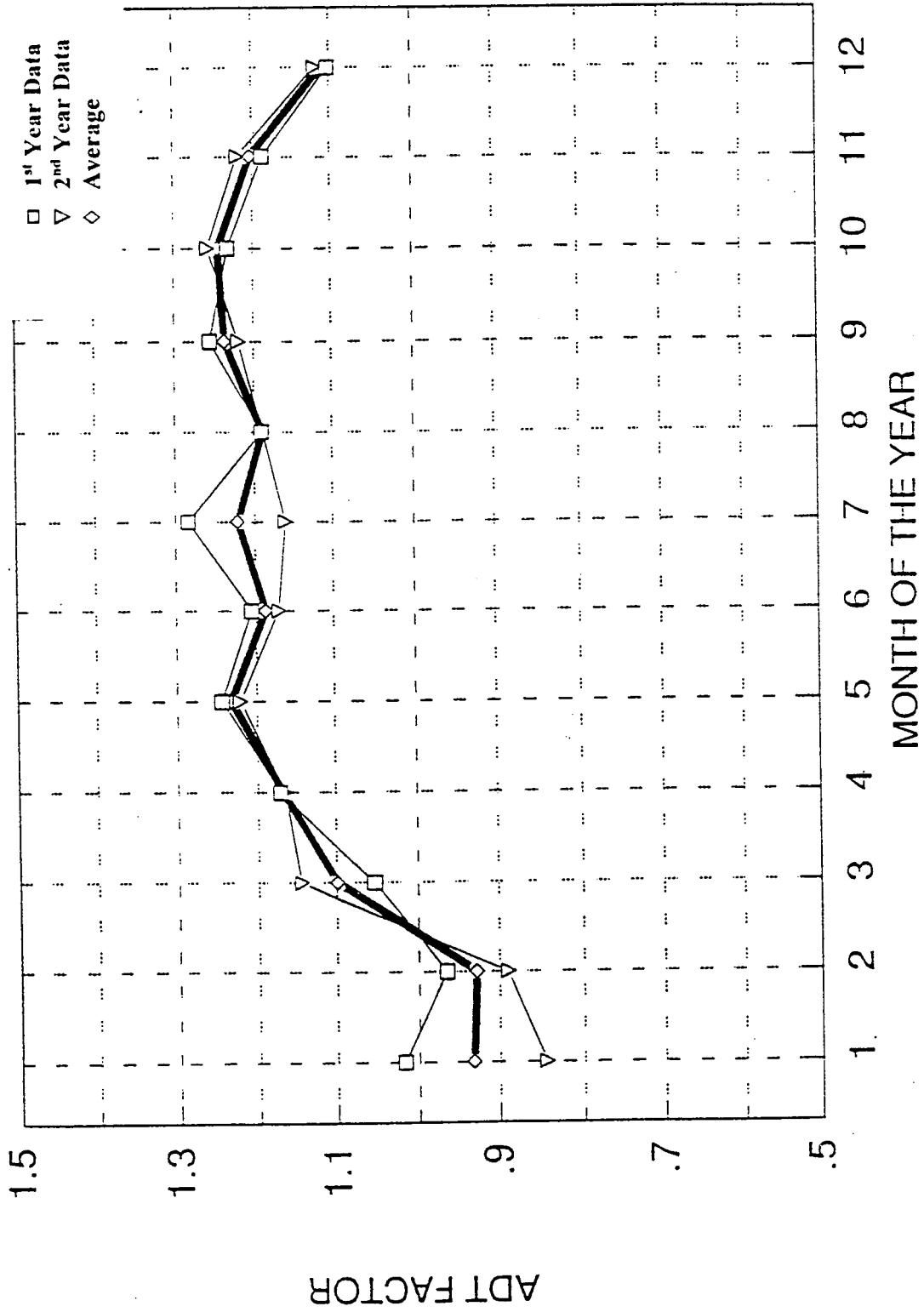


Figure 29. Rural Non-Interstates and Parkways (VT-1 to VT-15); Saturday

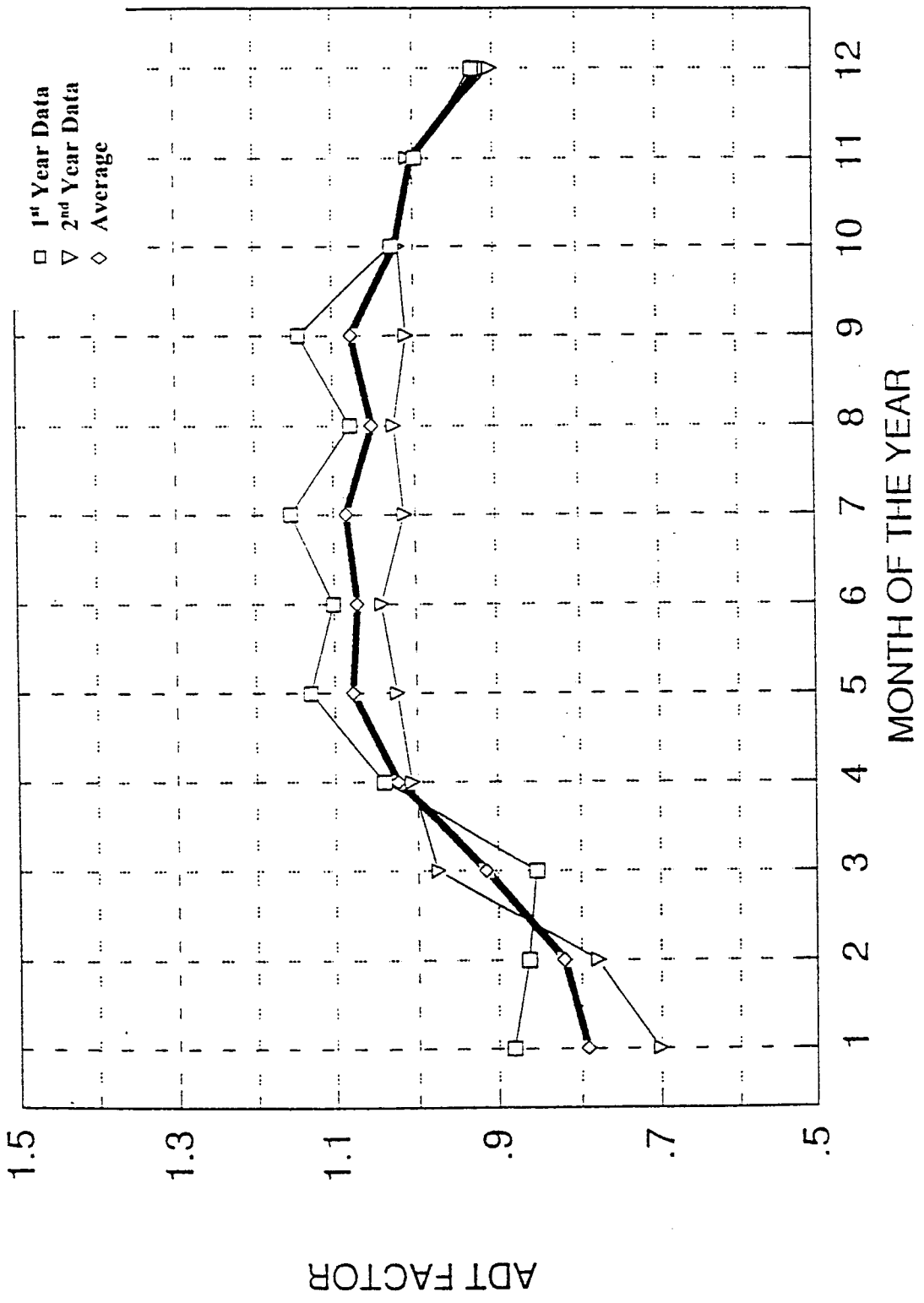


Figure 30. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 1, Motorcycle

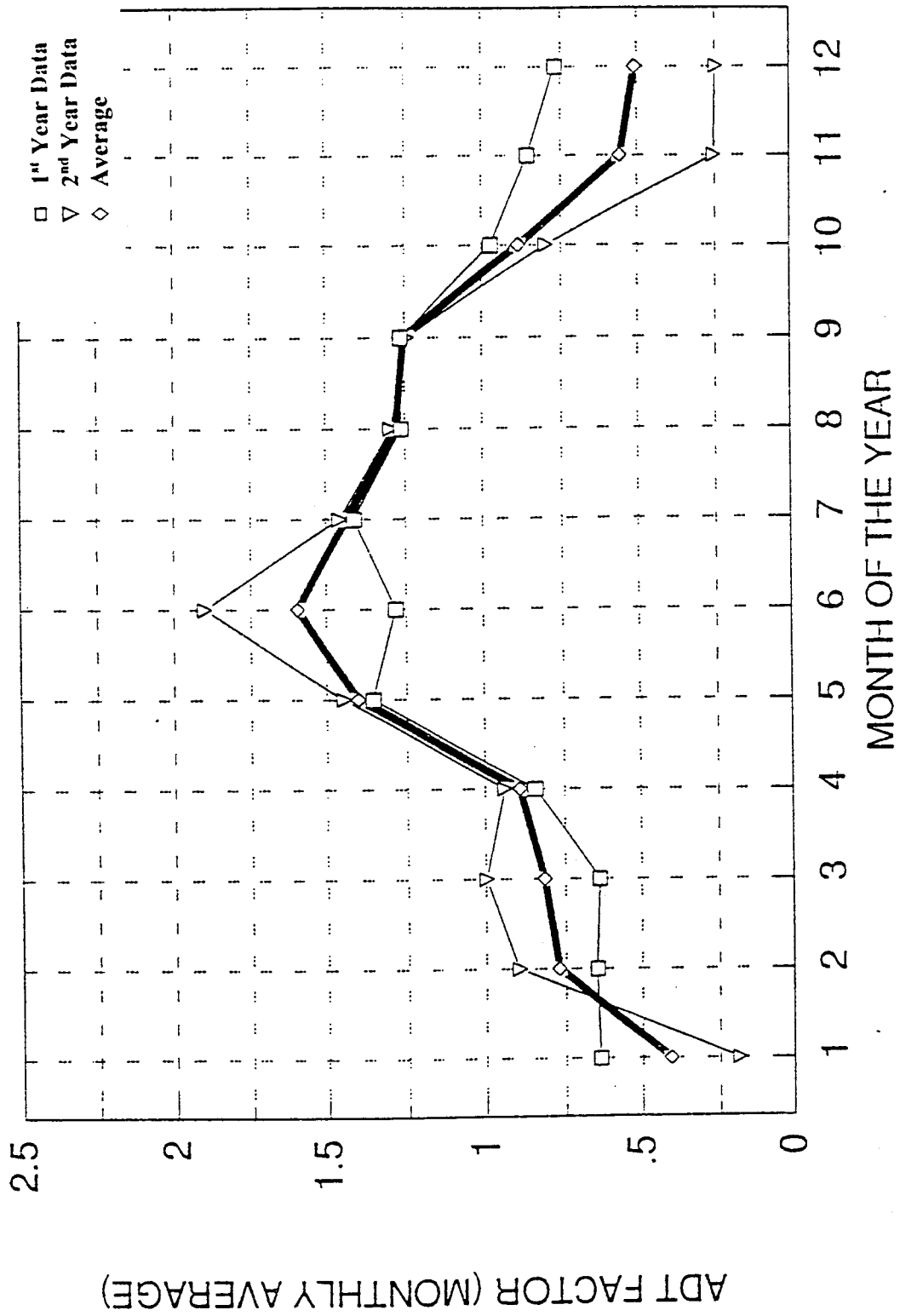


Figure 31. Variation of Monthly ADT Factor, Non-Interstates and Parkways
Vehicle Type 2, Car

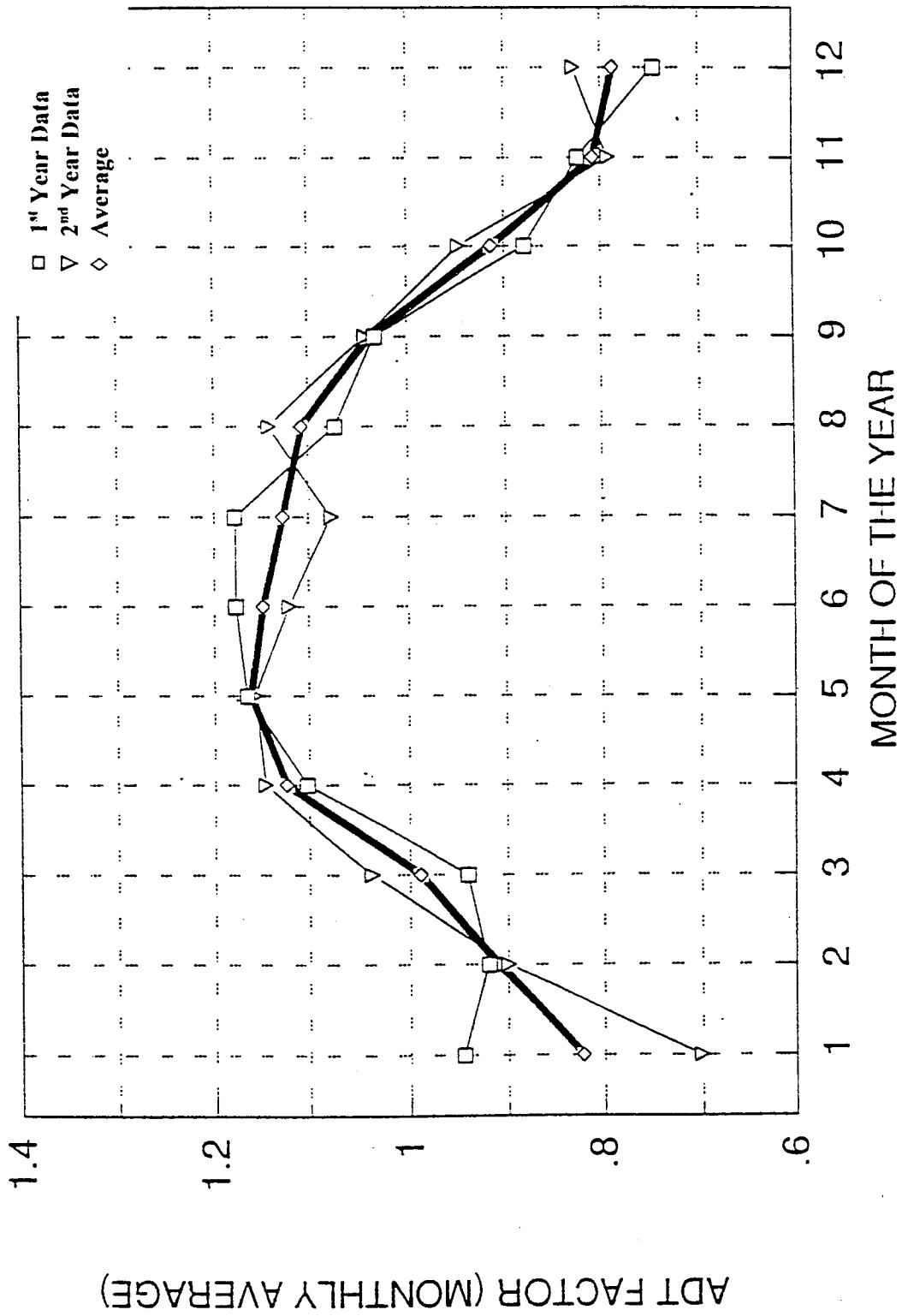


Figure 32. Variation of Monthly ADT Factor, Non-Interstates and Parkways
Vehicle Type 3, Pickup

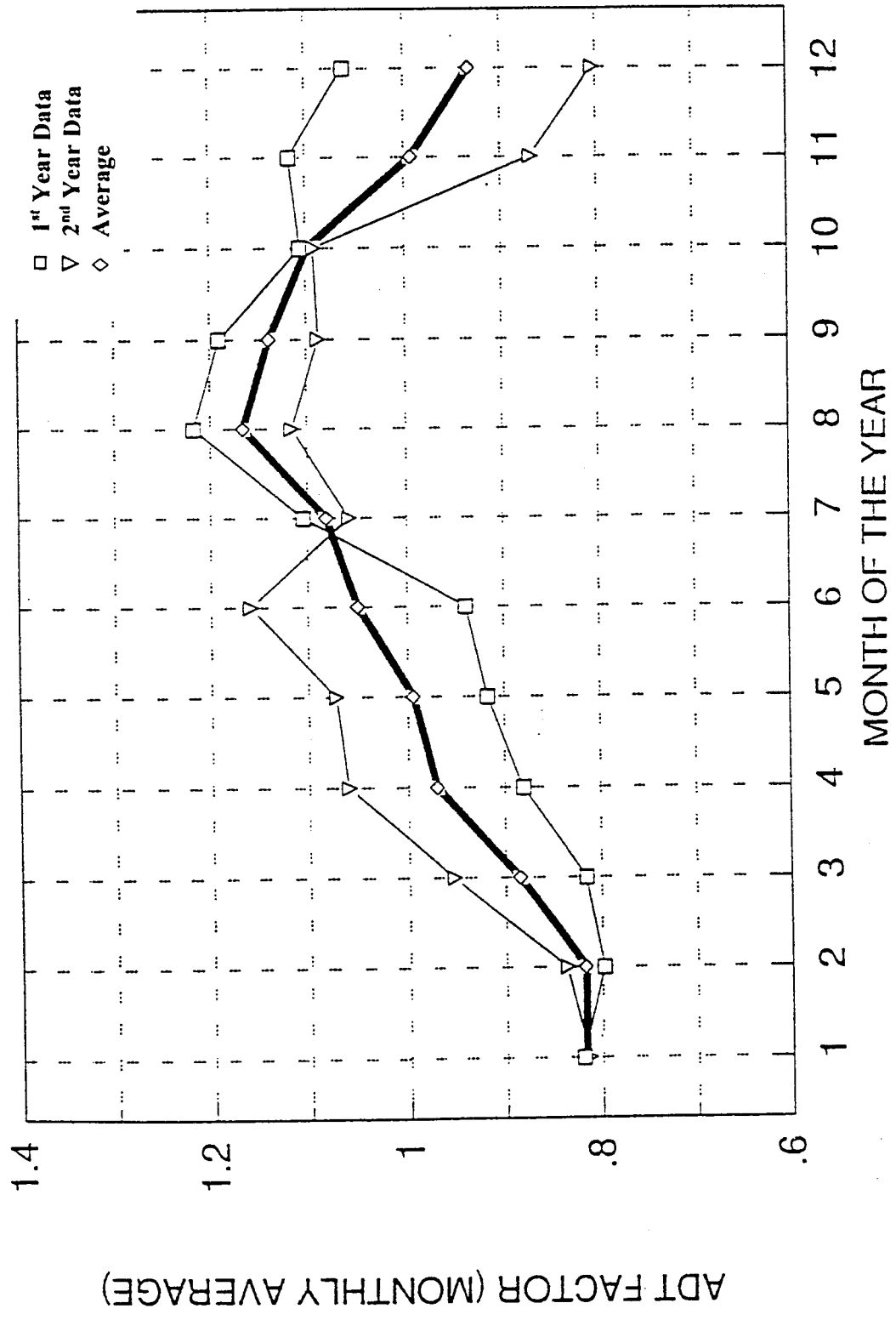


Figure 33. Variation of Monthly ADT Factor, Non-Interstates and Parkways
Vehicle Type 4, Bus

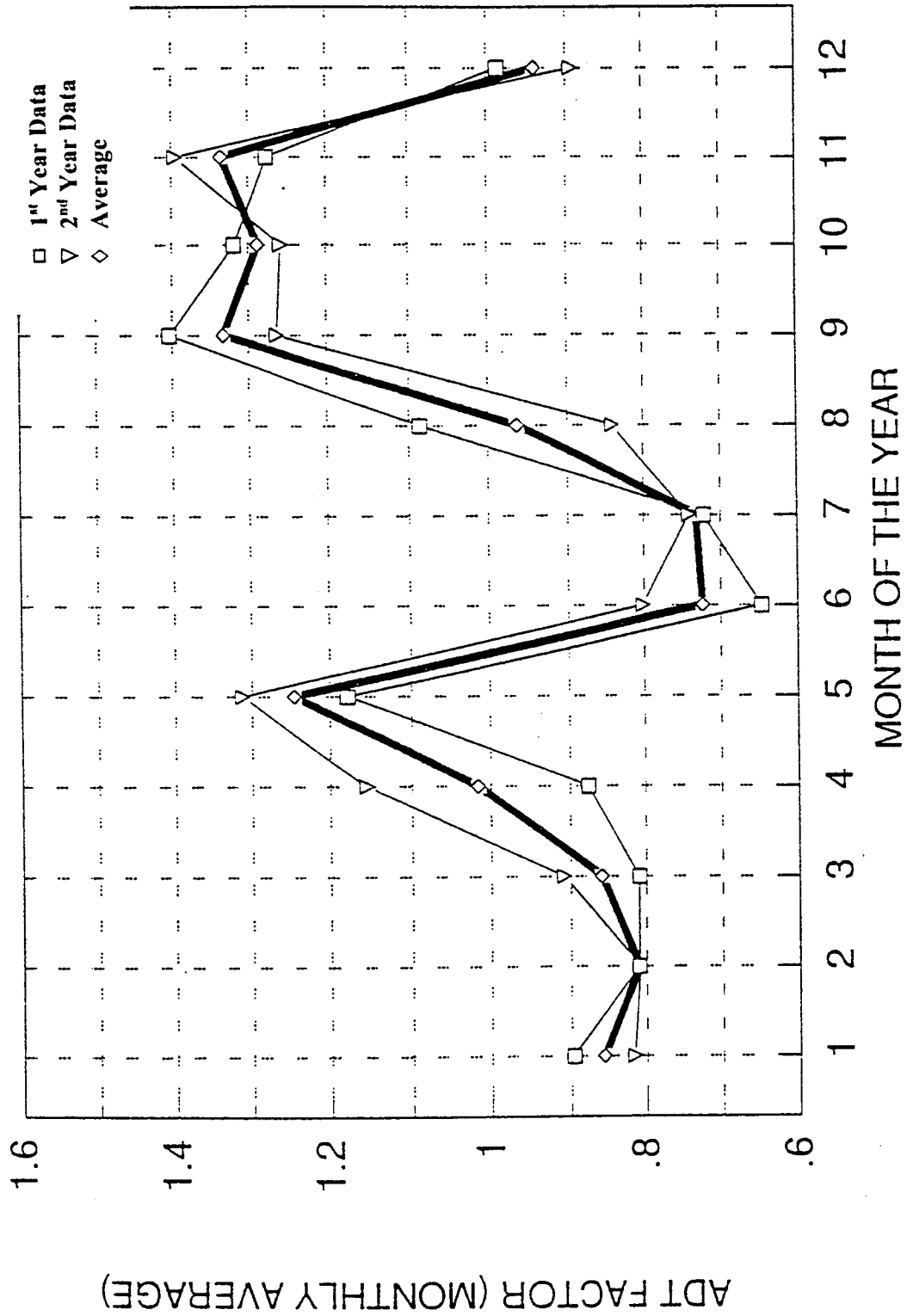


Figure 34. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 5, 2-Axle, 6-Tire

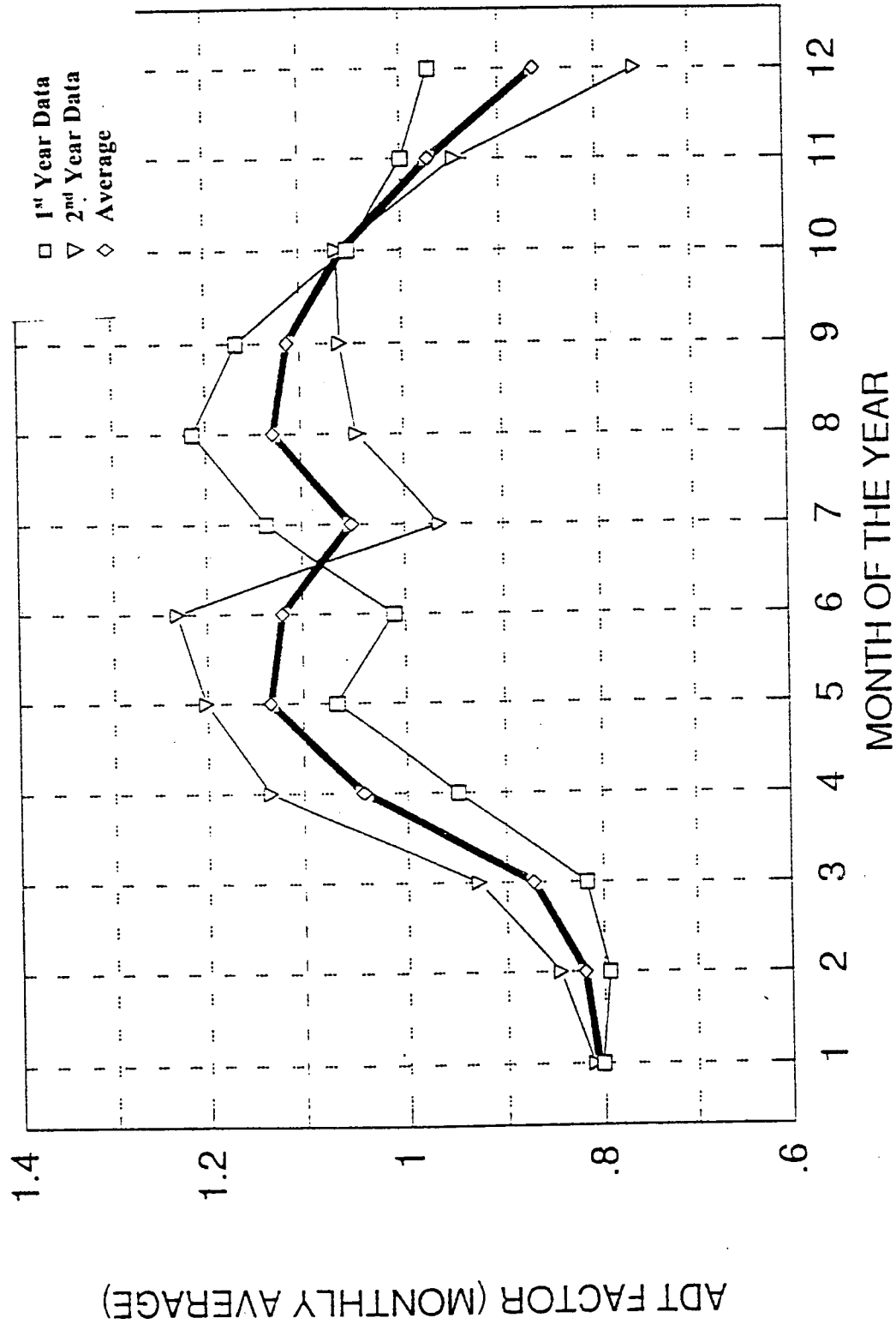


Figure 35. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 6, 3-Axle, Single Unit

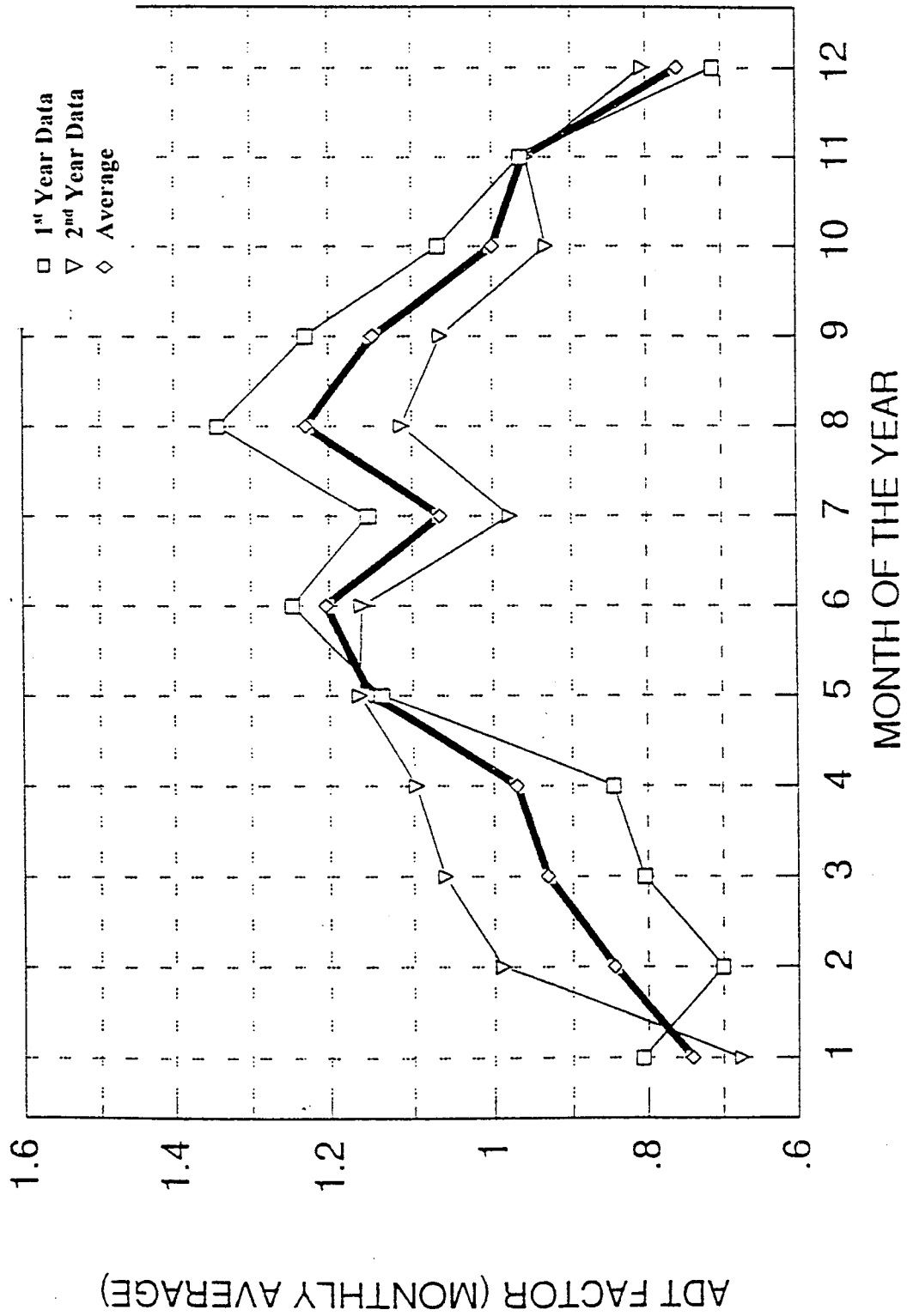


Figure 36. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 7, 4-Axle, Single Unit

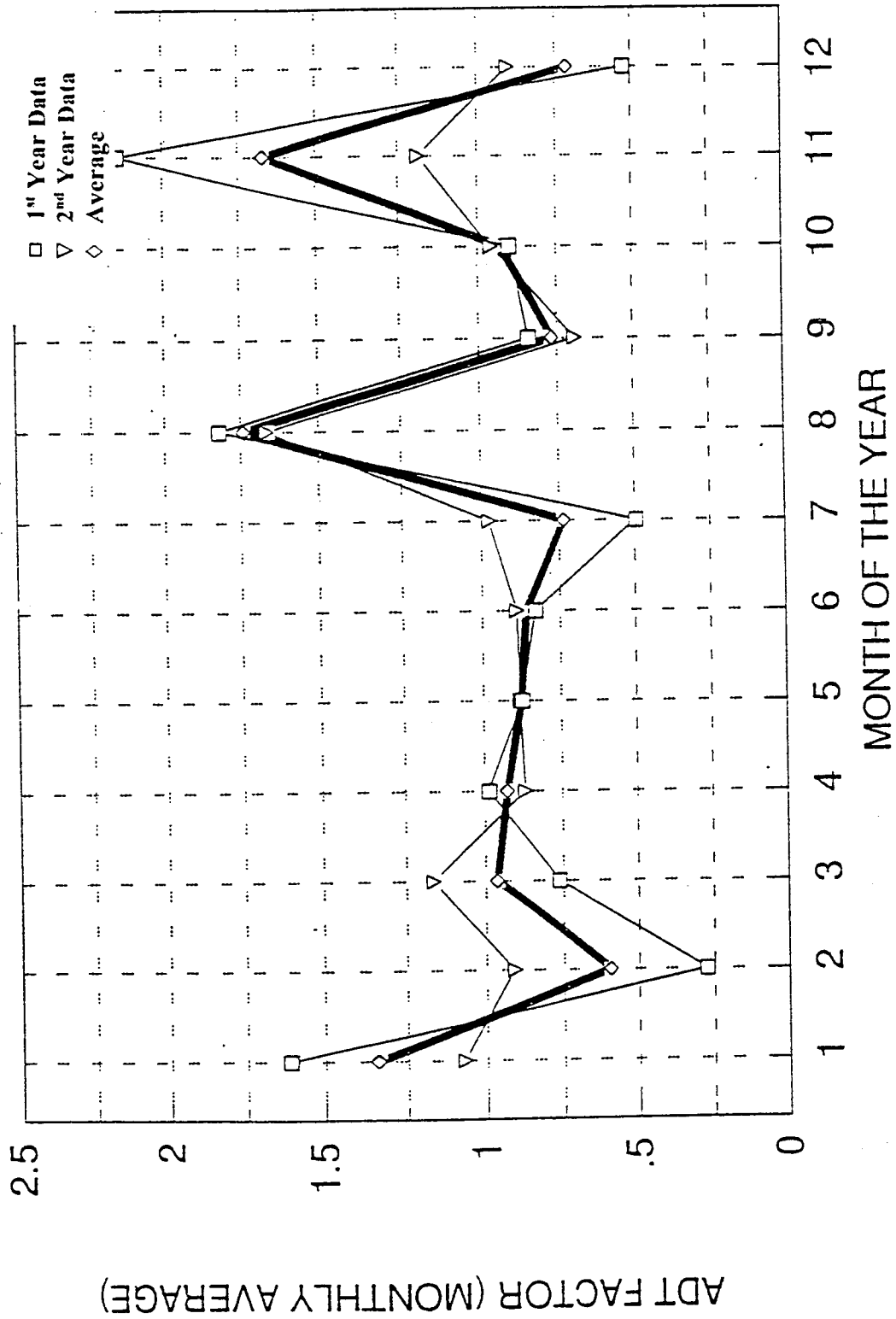


Figure 37. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 8, 2S1, 3S1, and 2S2

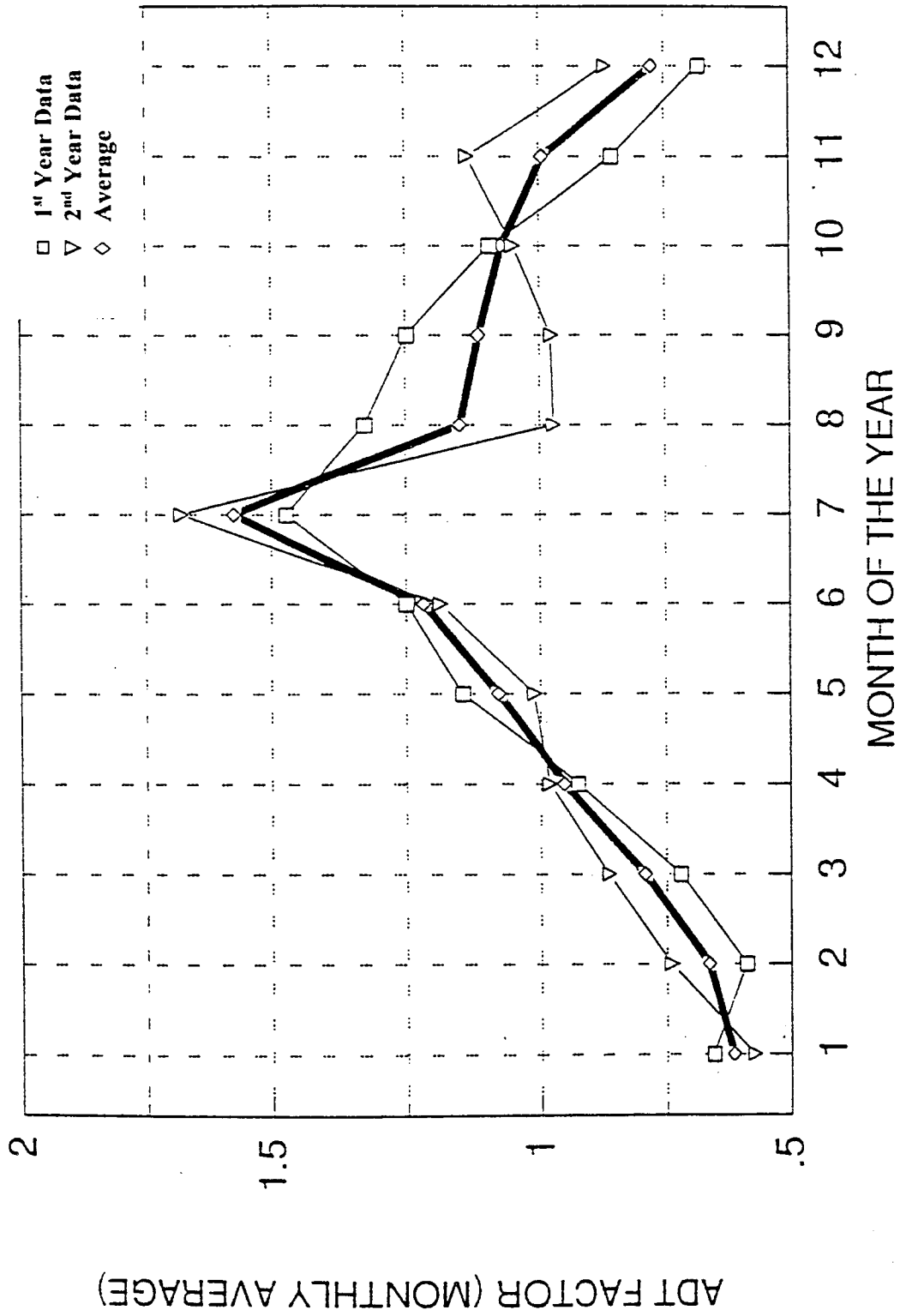
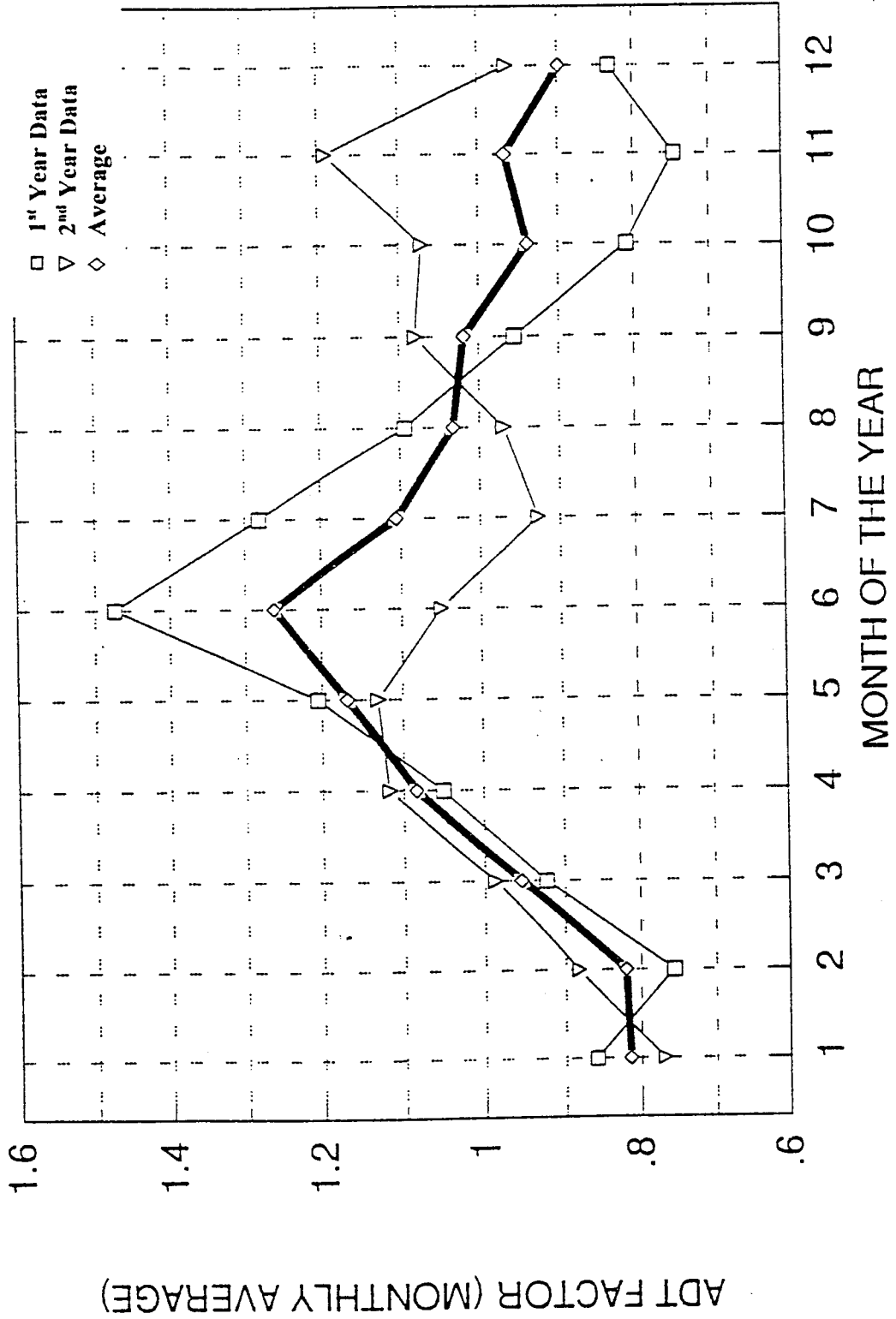


Figure 38. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 9, 3S2 or 3-Axle with Trailer



**Figure 39. Variation of Monthly ADT Factor, Non-Interstates and Parkways
Vehicle Type 10, 6 or 7-Axle with Single Trailer**

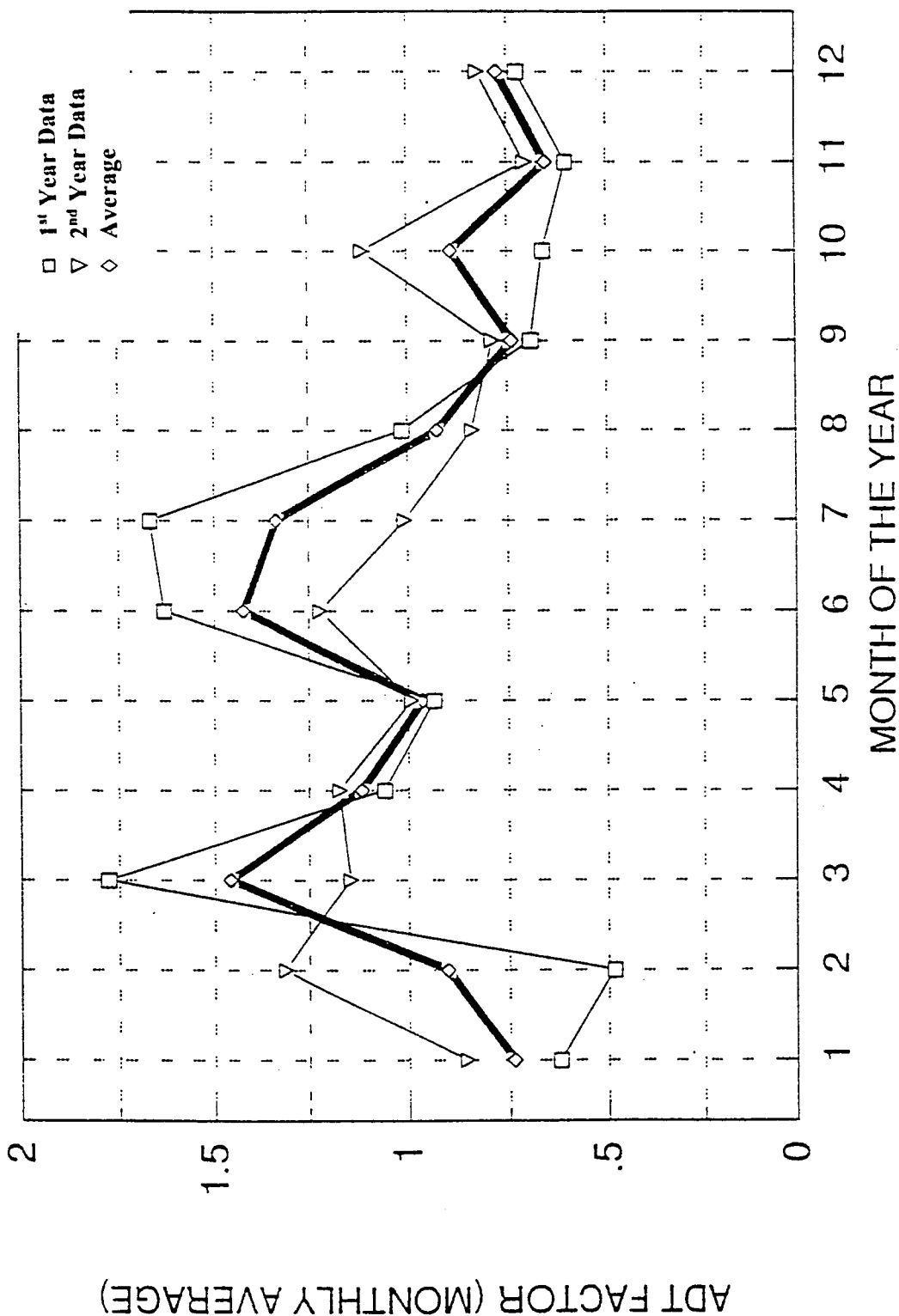


Figure 40. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 11, 5-Axle, Multi-Trailer

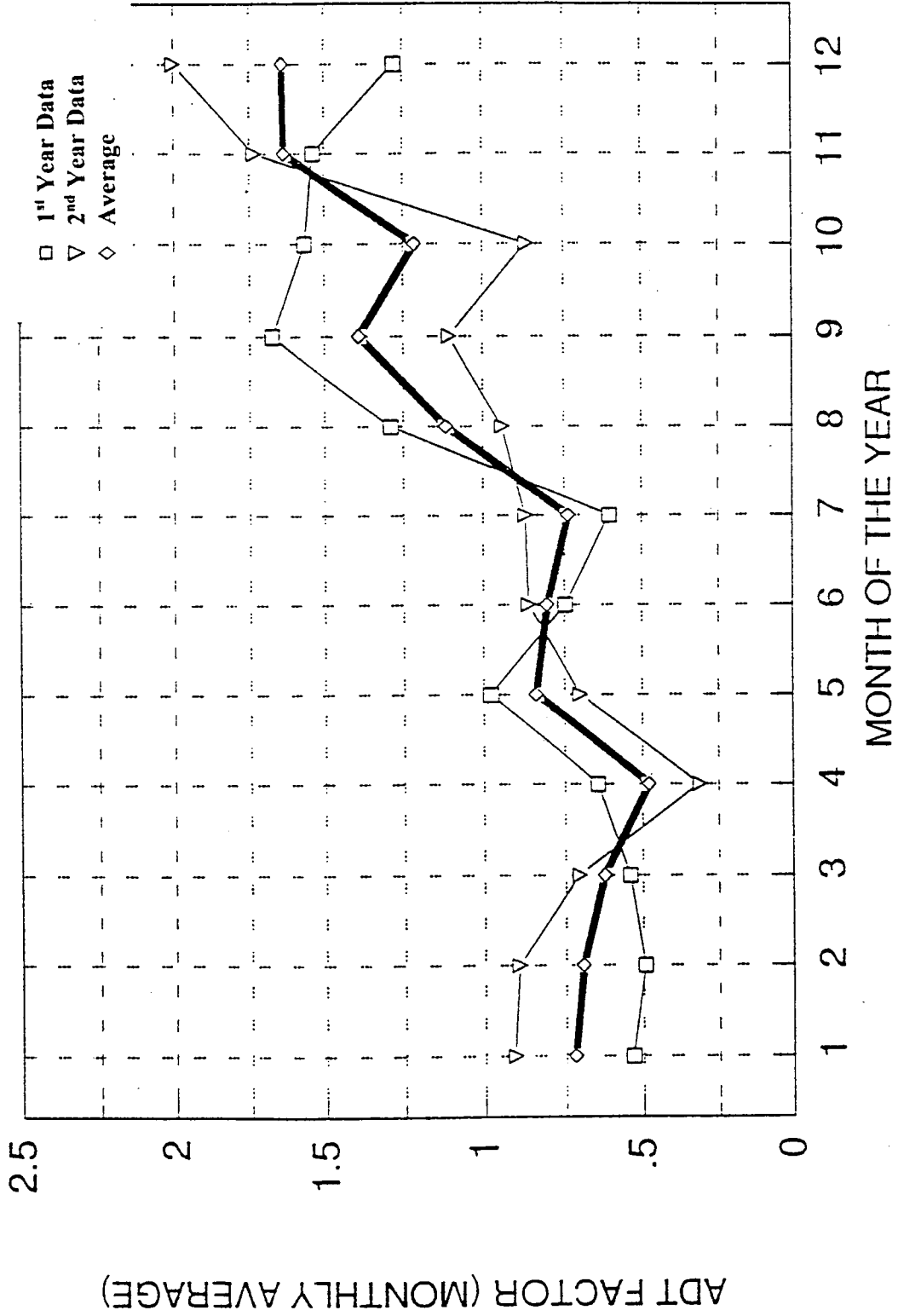


Figure 41. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 12, 6-Axle, Multi-Trailer

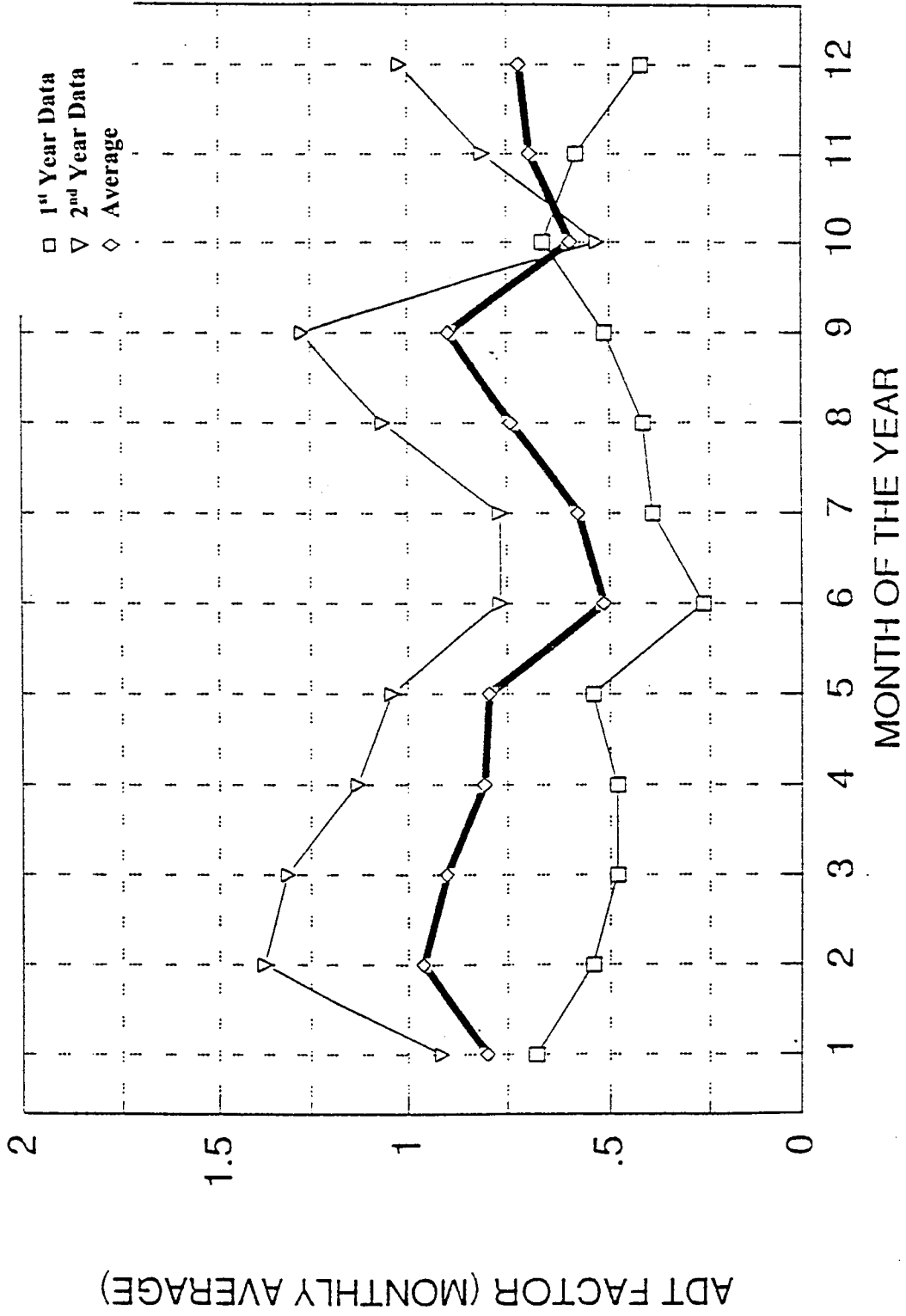


Figure 42. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 13, 7-Axle, Multi-Trailer

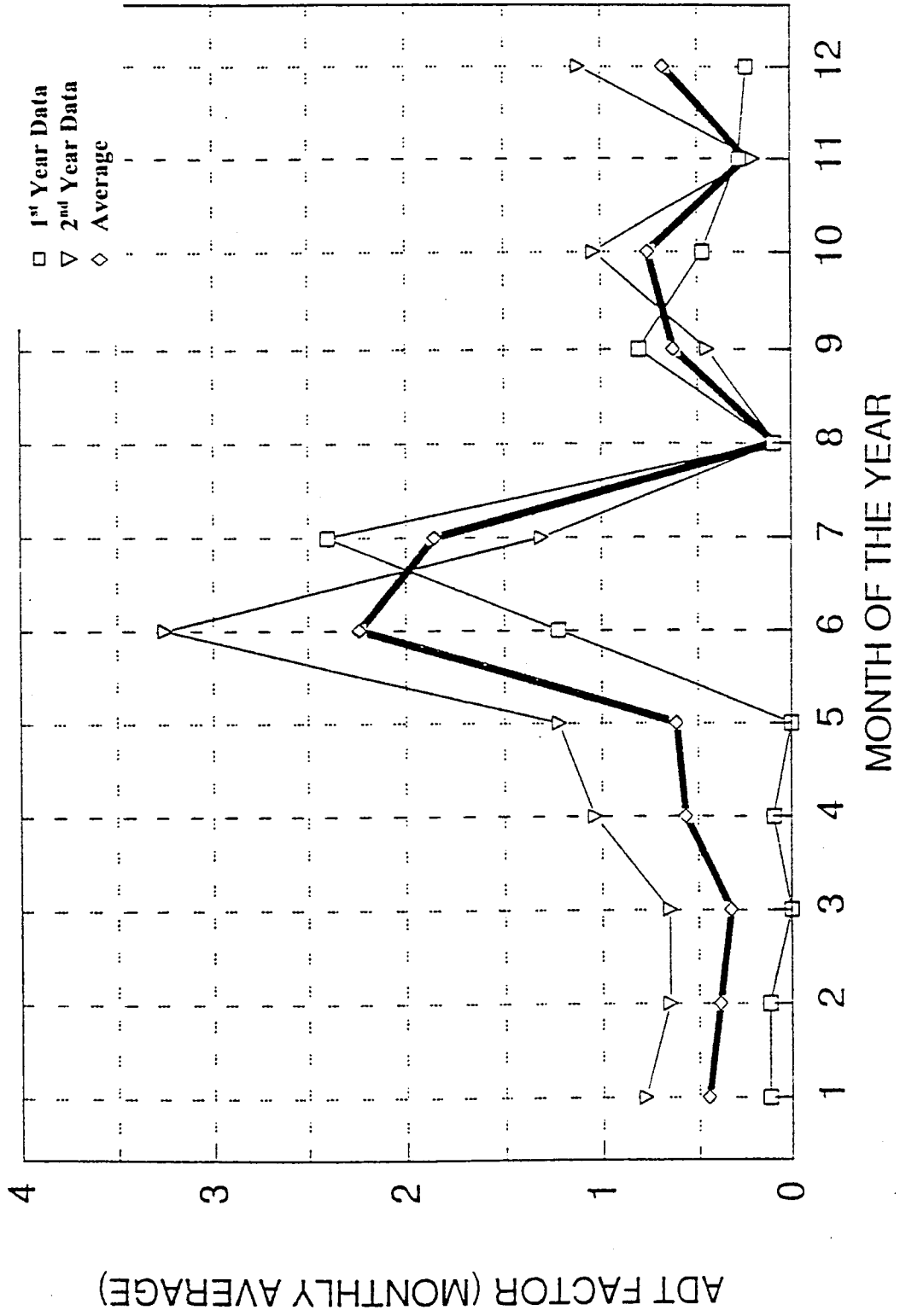


Figure 43. Variation of Monthly ADT Factor, Non-Interstates and Parkways
 Vehicle Type 15, Unclassified

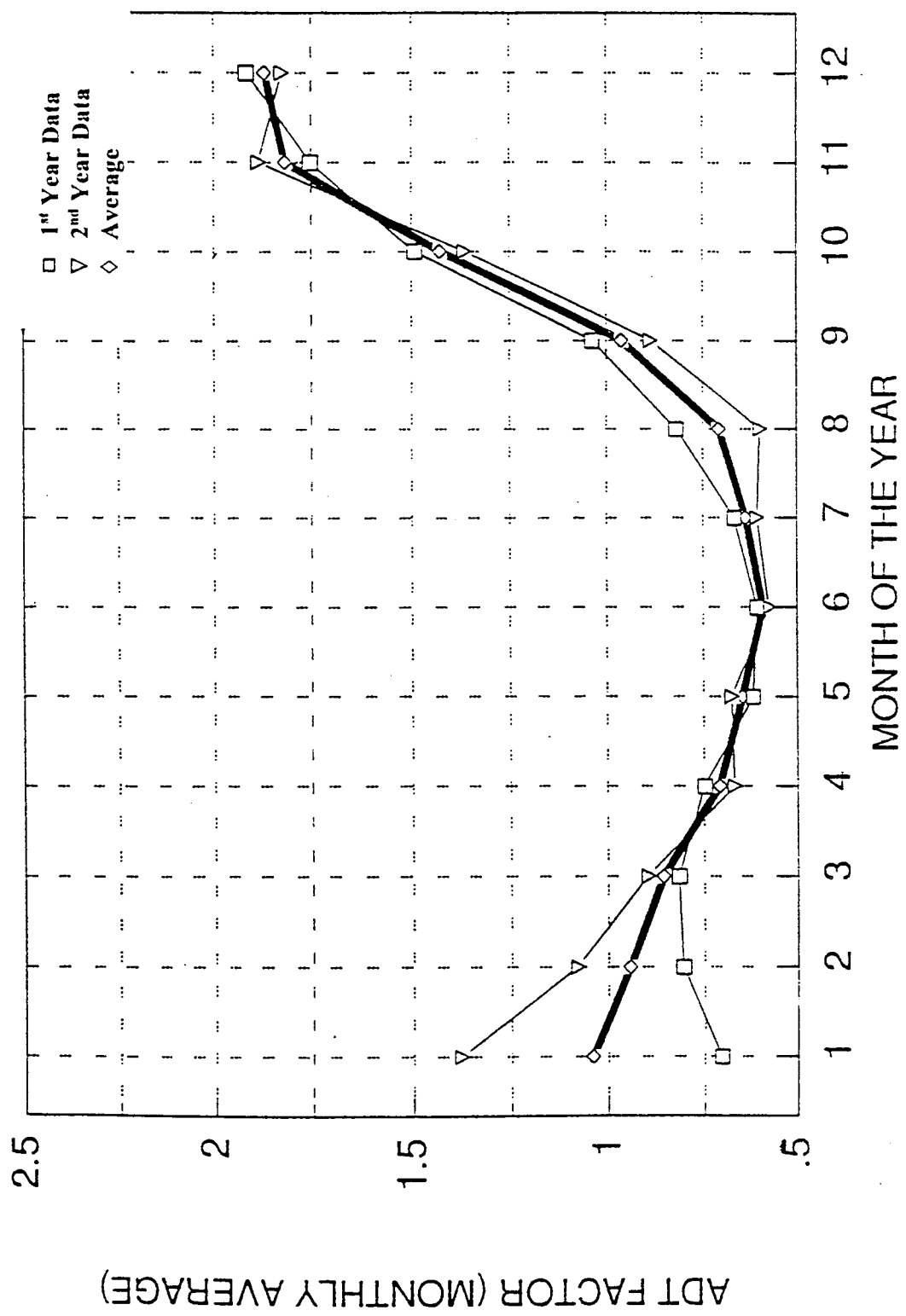


Figure 44. Monthly Variation for Rural Interstates and Parkways

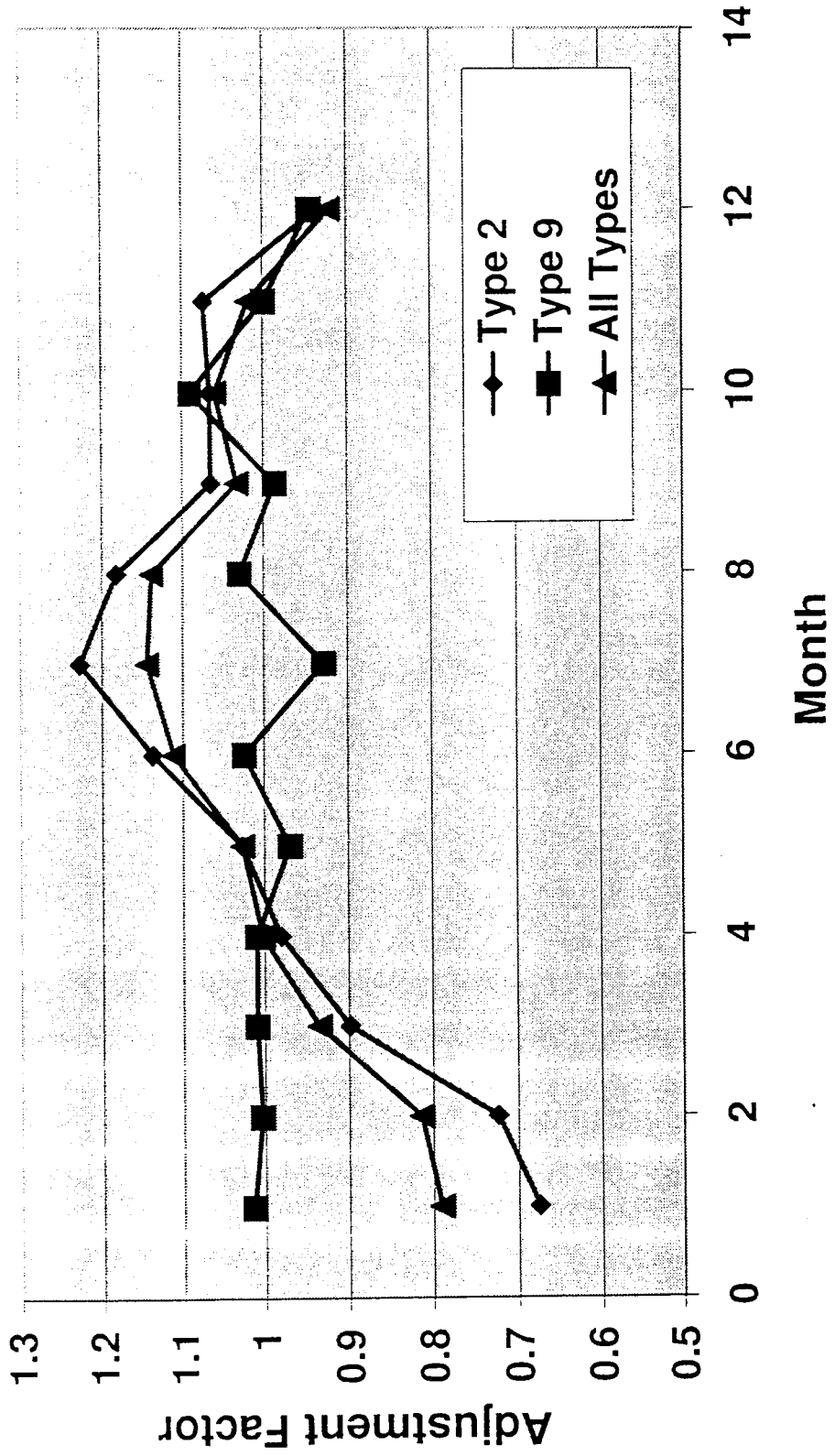
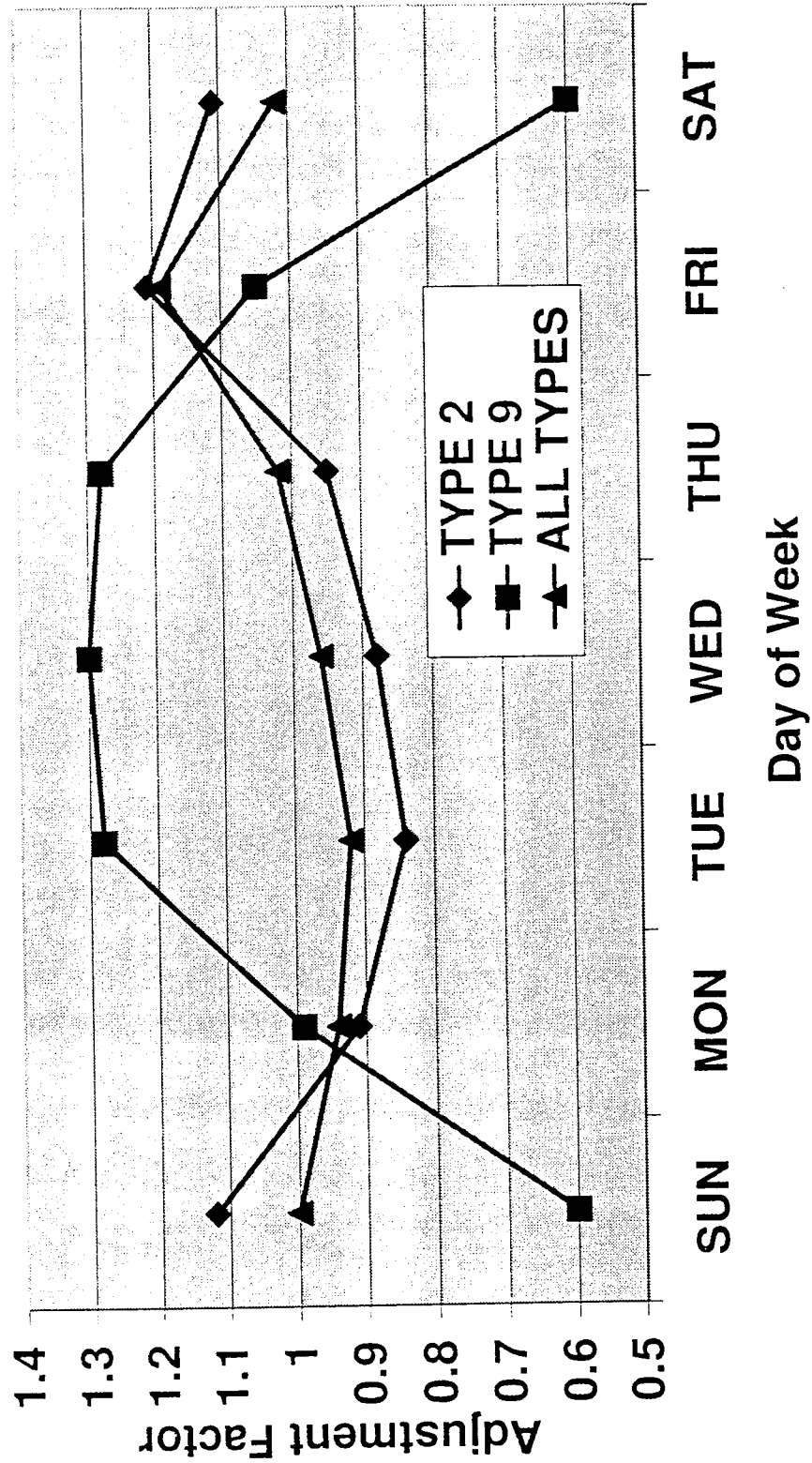


Figure 45. Daily Variation for Rural Interstates and Parkways



**Figure 46. Monthly Variation for Rural
Non-Interstates and Parkways**

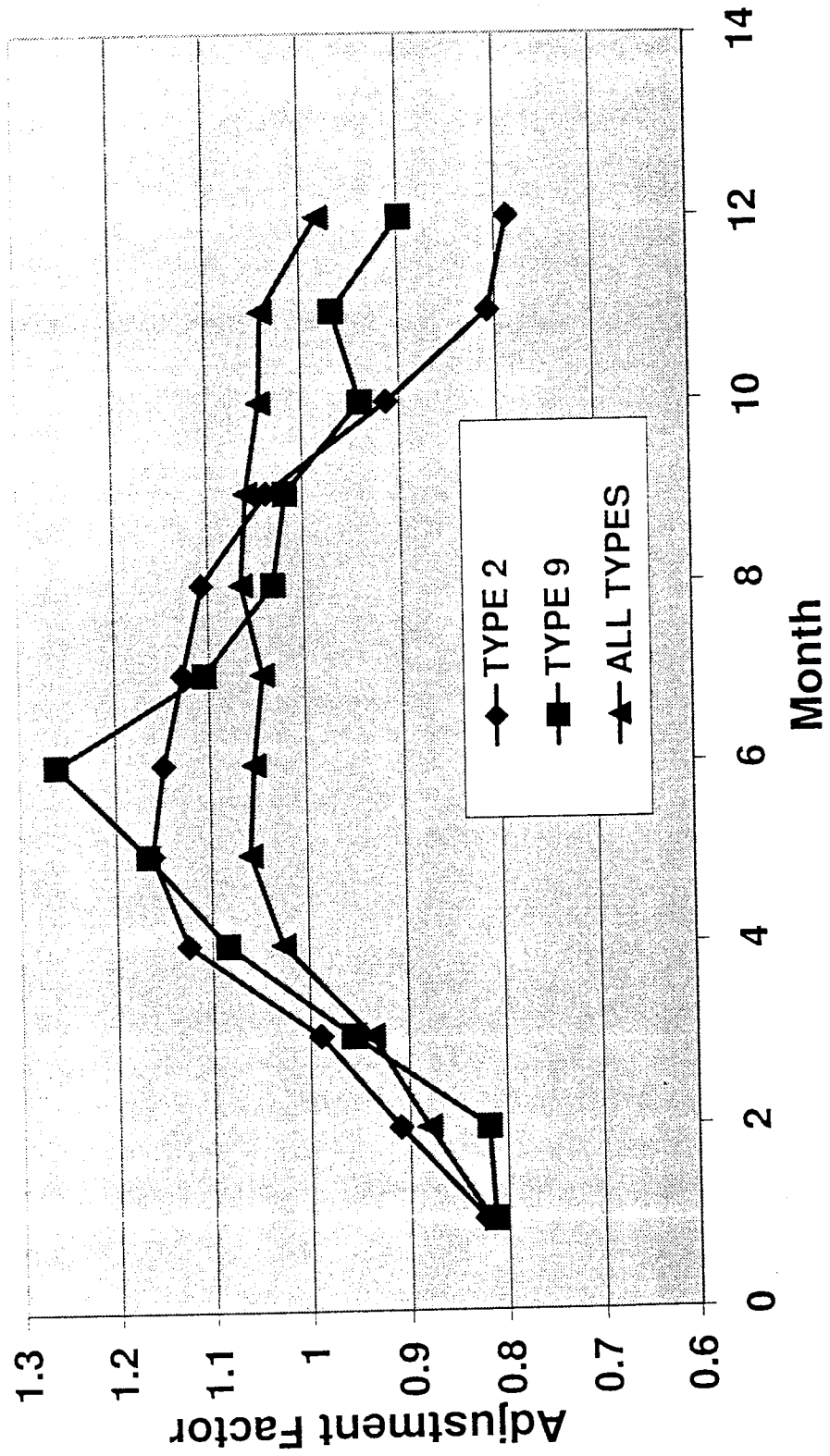


Figure 47. Daily Variation for Non-Interstates and Parkways

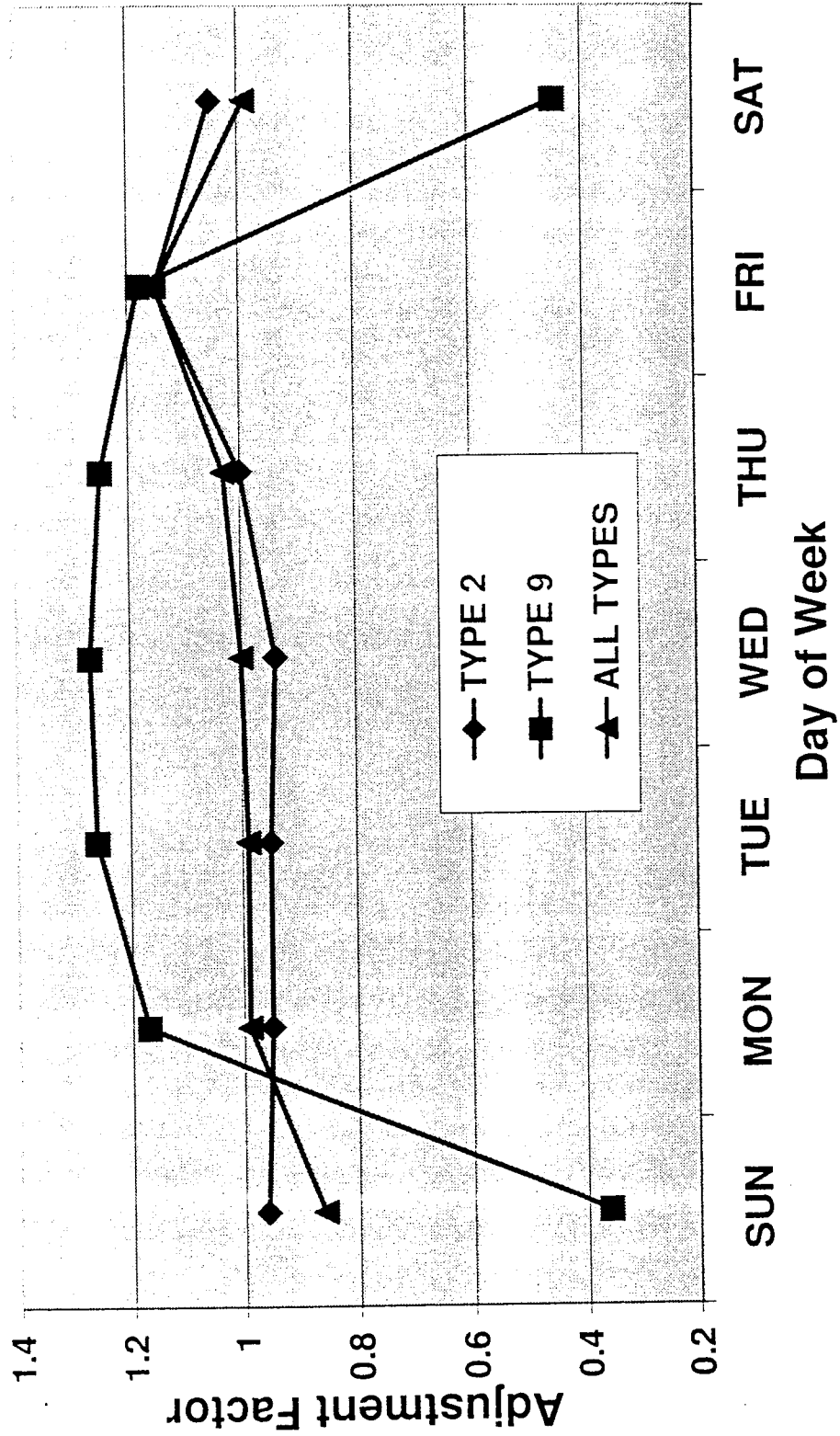


FIGURE 48.

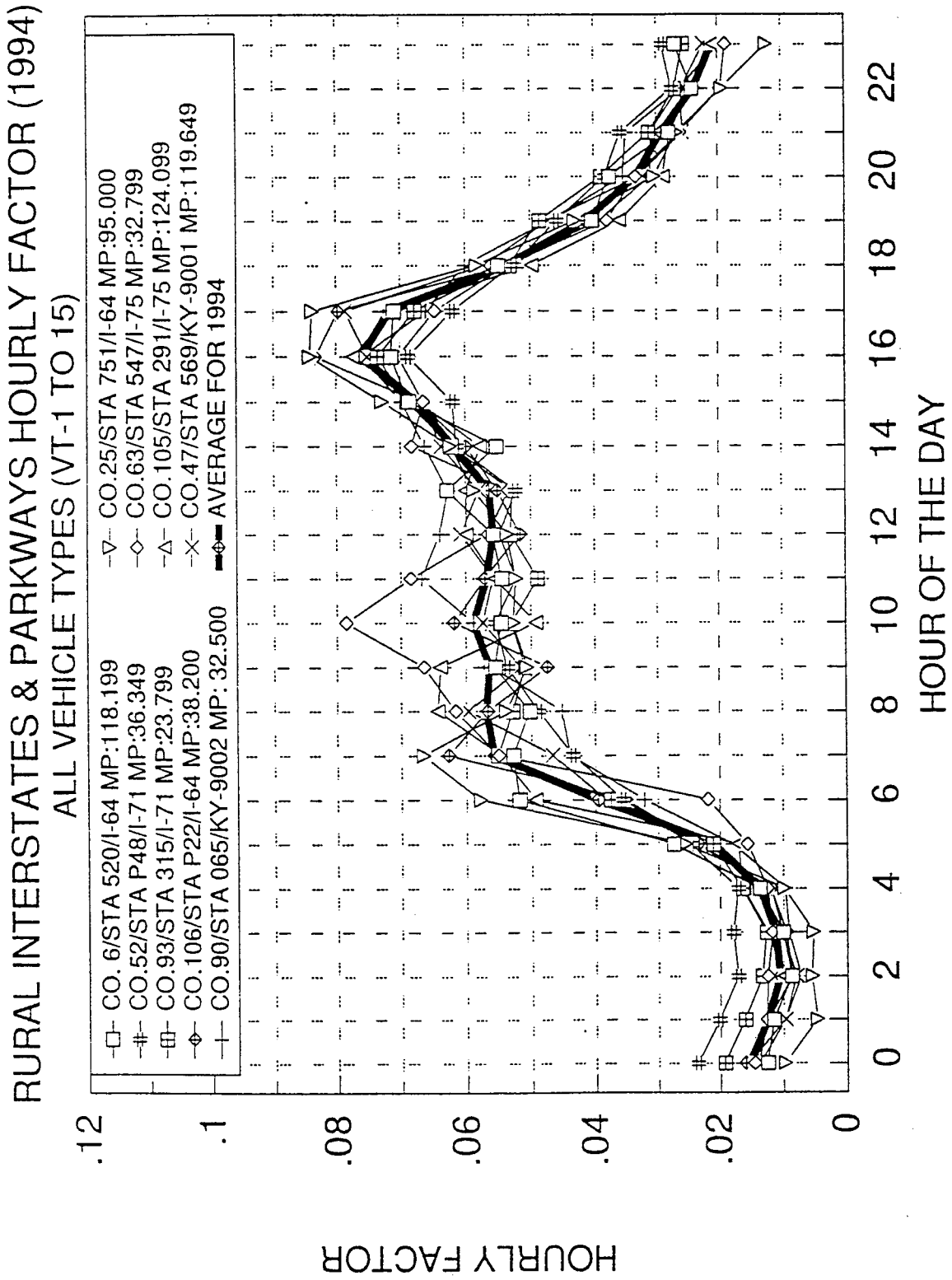


FIGURE 49.
 RURAL INTERSTATES & PARKWAYS HOURLY FACTOR (1994)
 VEHICLE TYPE: 9

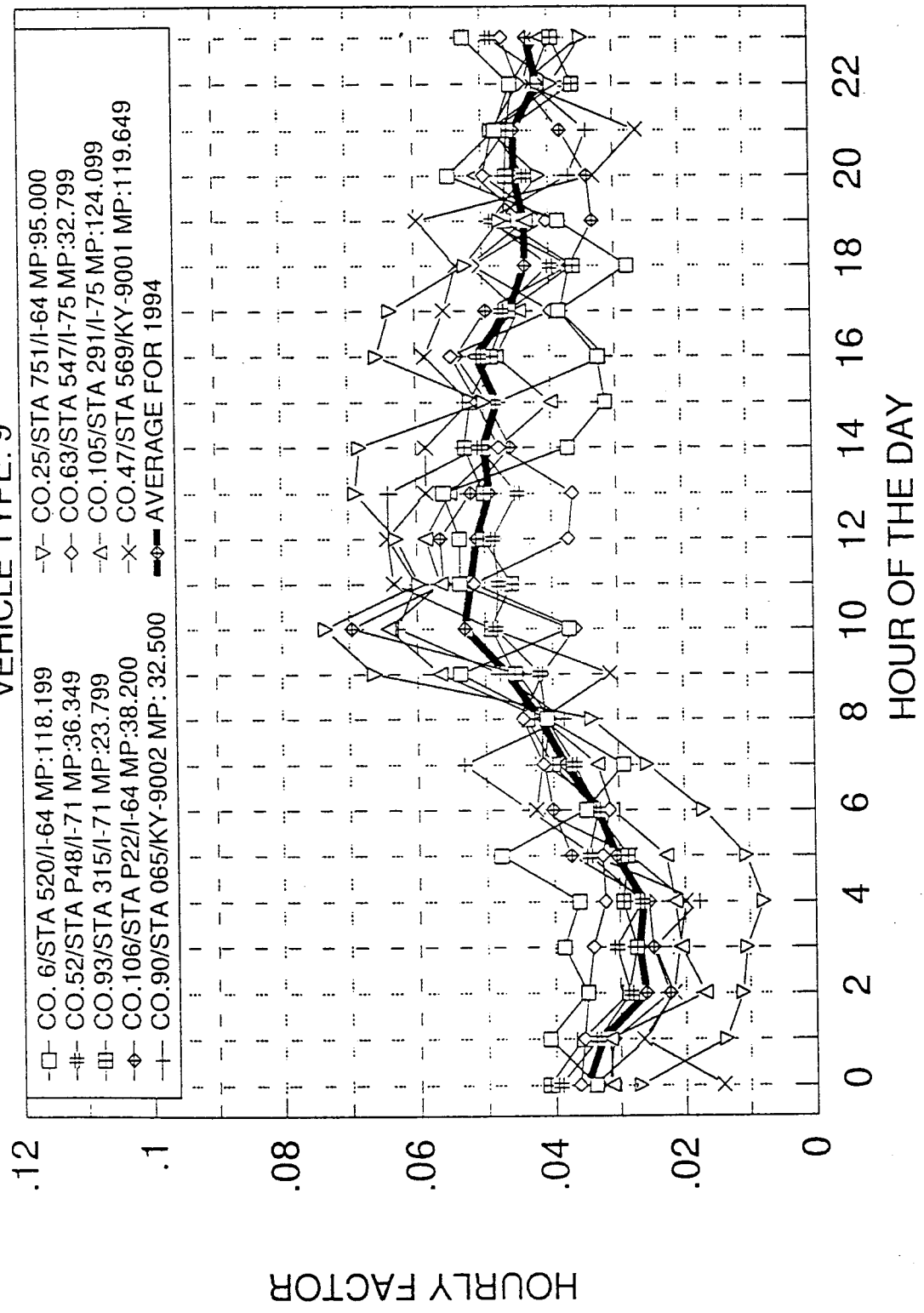


FIGURE 50.
URBAN INTERSTATES HOURLY FACTOR (1994)
ALL VEHICLE TYPES (VT-1 TO 15)

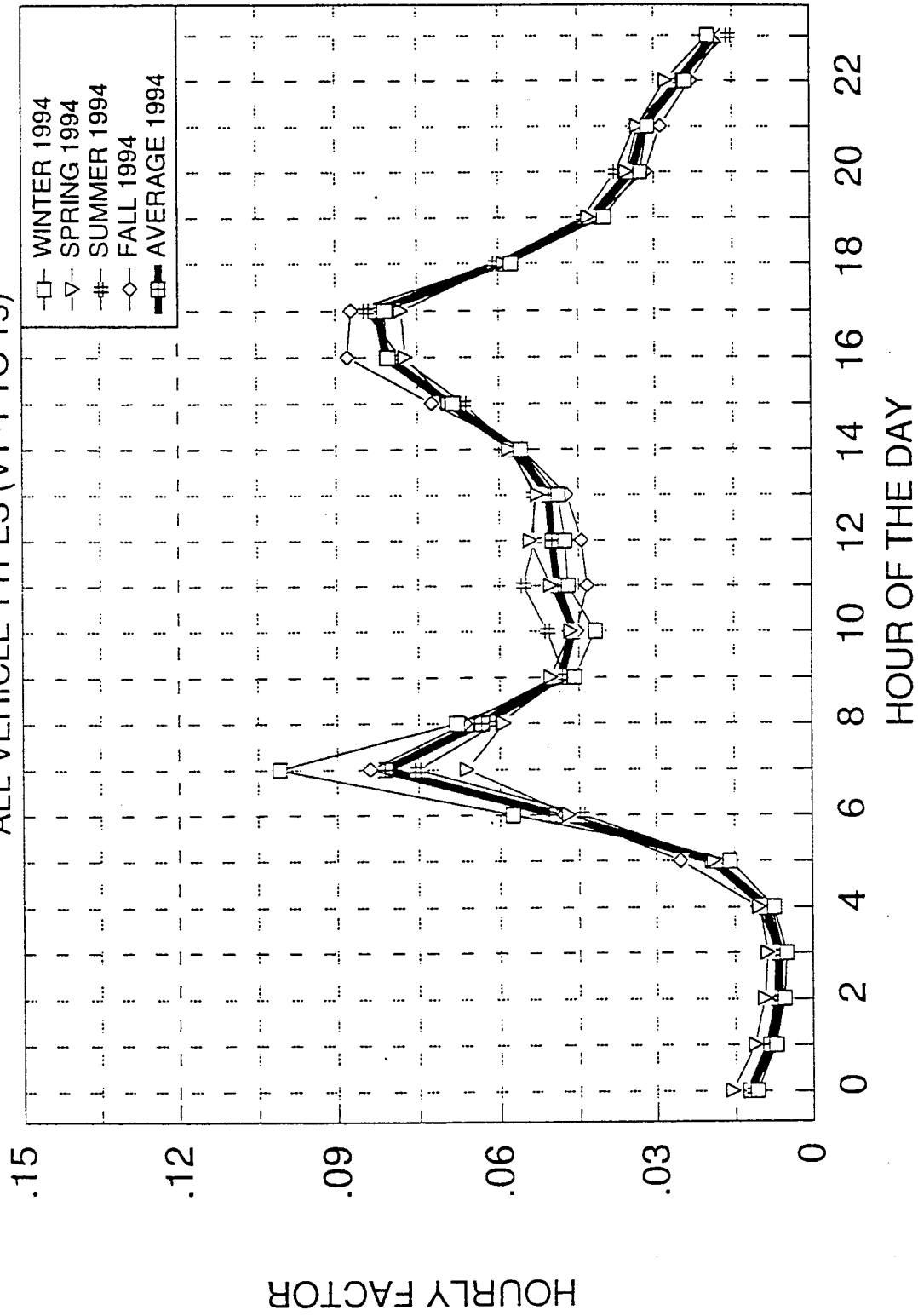


FIGURE 51.
 URBAN INTERSTATES HOURLY FACTOR (1994)
 VEHICLE TYPE: 9

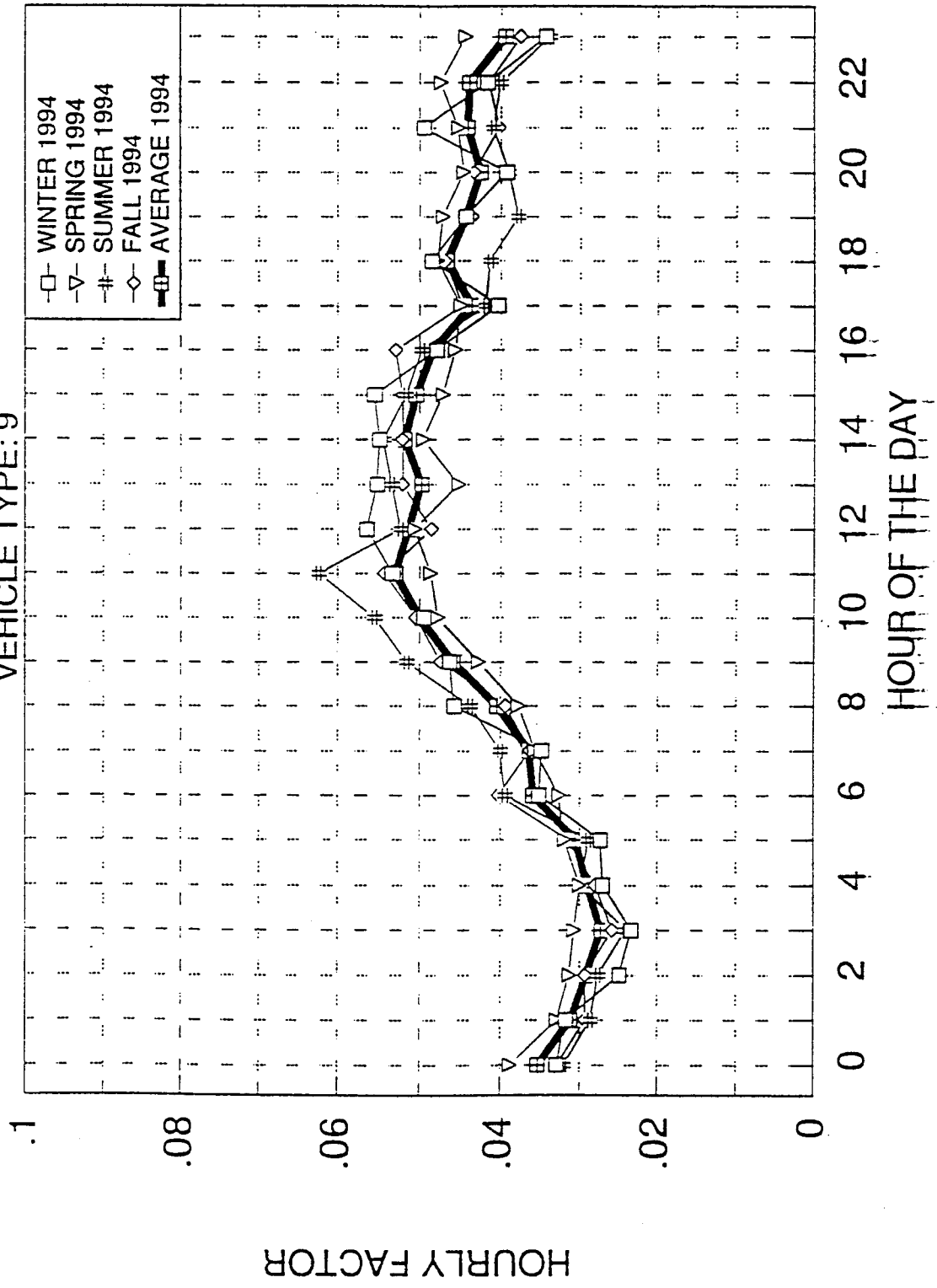


FIGURE 52.

RURAL NON-INTERSTATE & PARKWAY HOURLY FACTOR(1994)
ALL VEHICLE TYPES (VT-1 TO VT 15)

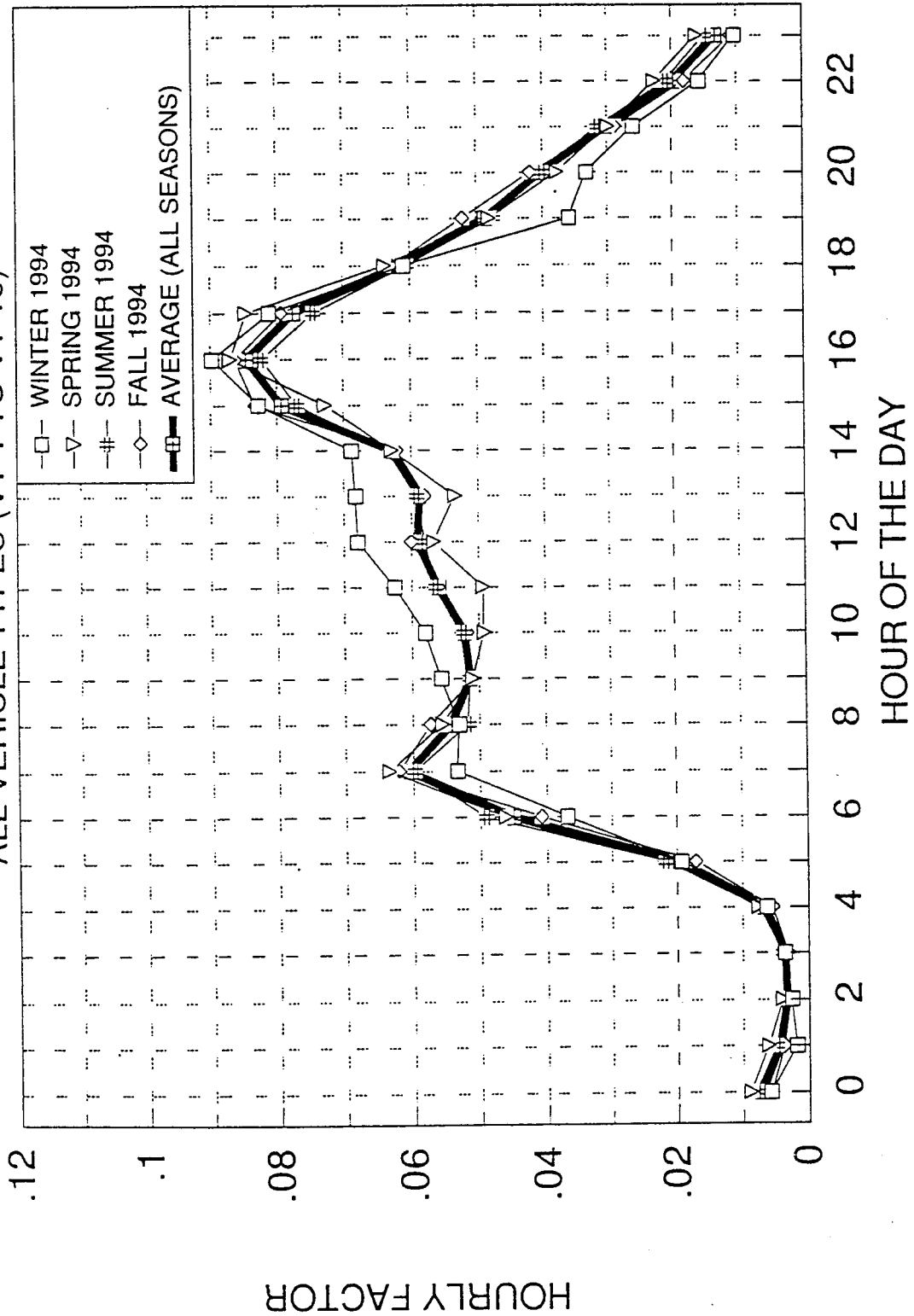


FIGURE 53.
 RURAL NON-INTERSTATE & PARKWAY HOURLY FACTOR(1994)
 VEHICLE TYPE 9

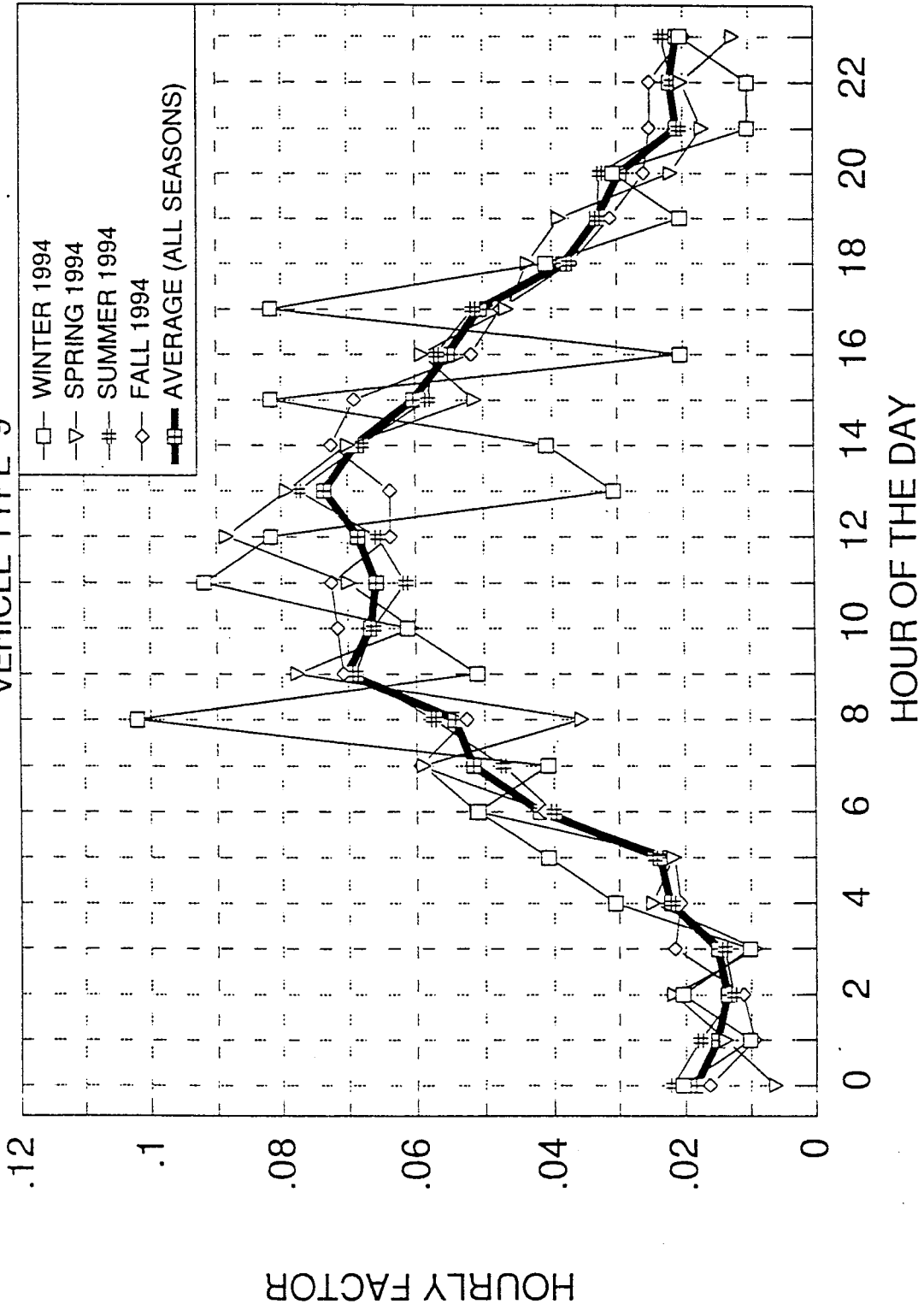


FIGURE 54.

URBAN NON-INTERSTATE & PARKWAY HOURLY FACTOR(1994)
ALL VEHICLE TYPES (VT-1 TO VT-15)

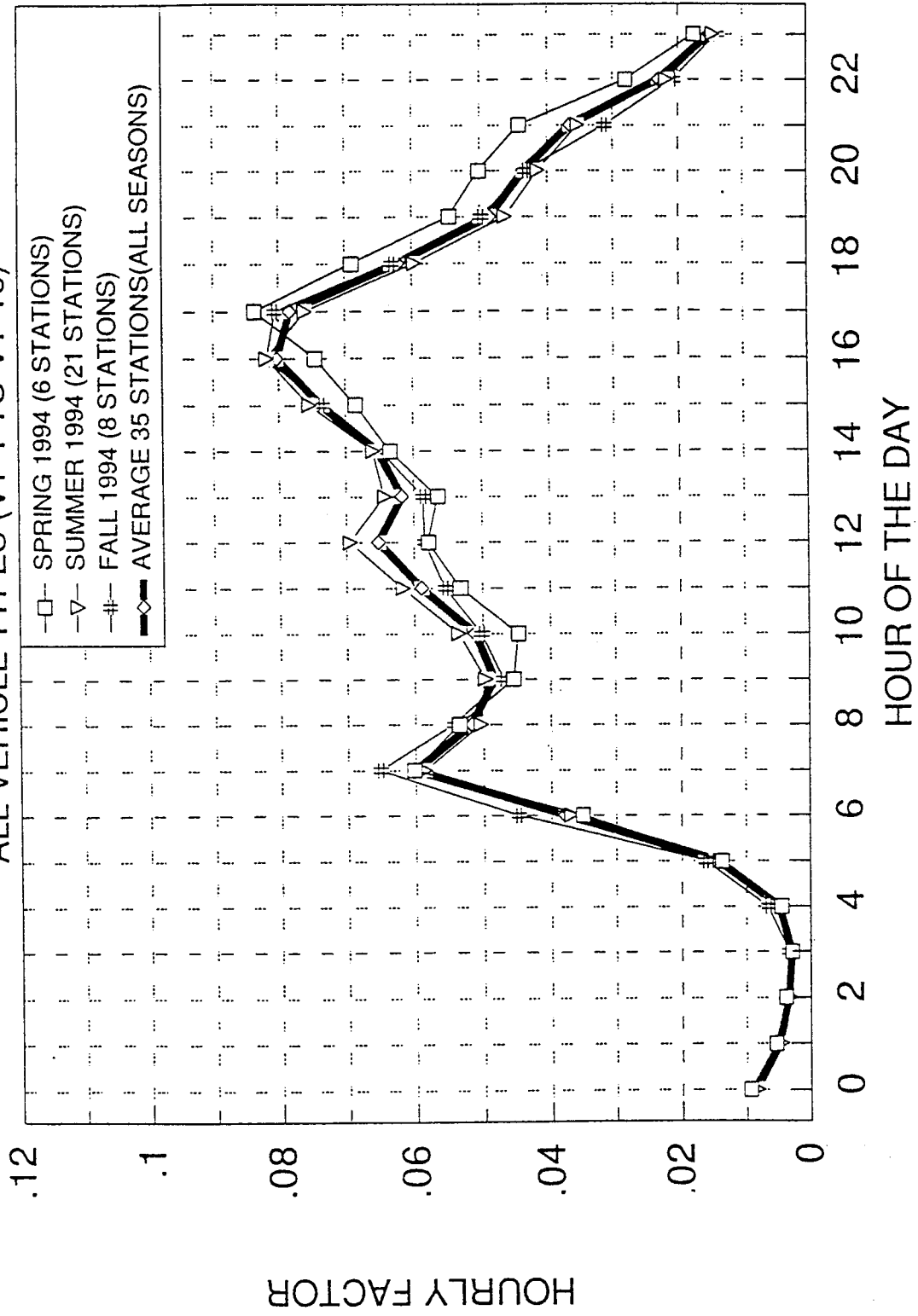


FIGURE 55.
 URBAN NON-INTERSTATE & PARKWAY HOURLY FACTOR(1994)
 VEHICLE TYPE 9

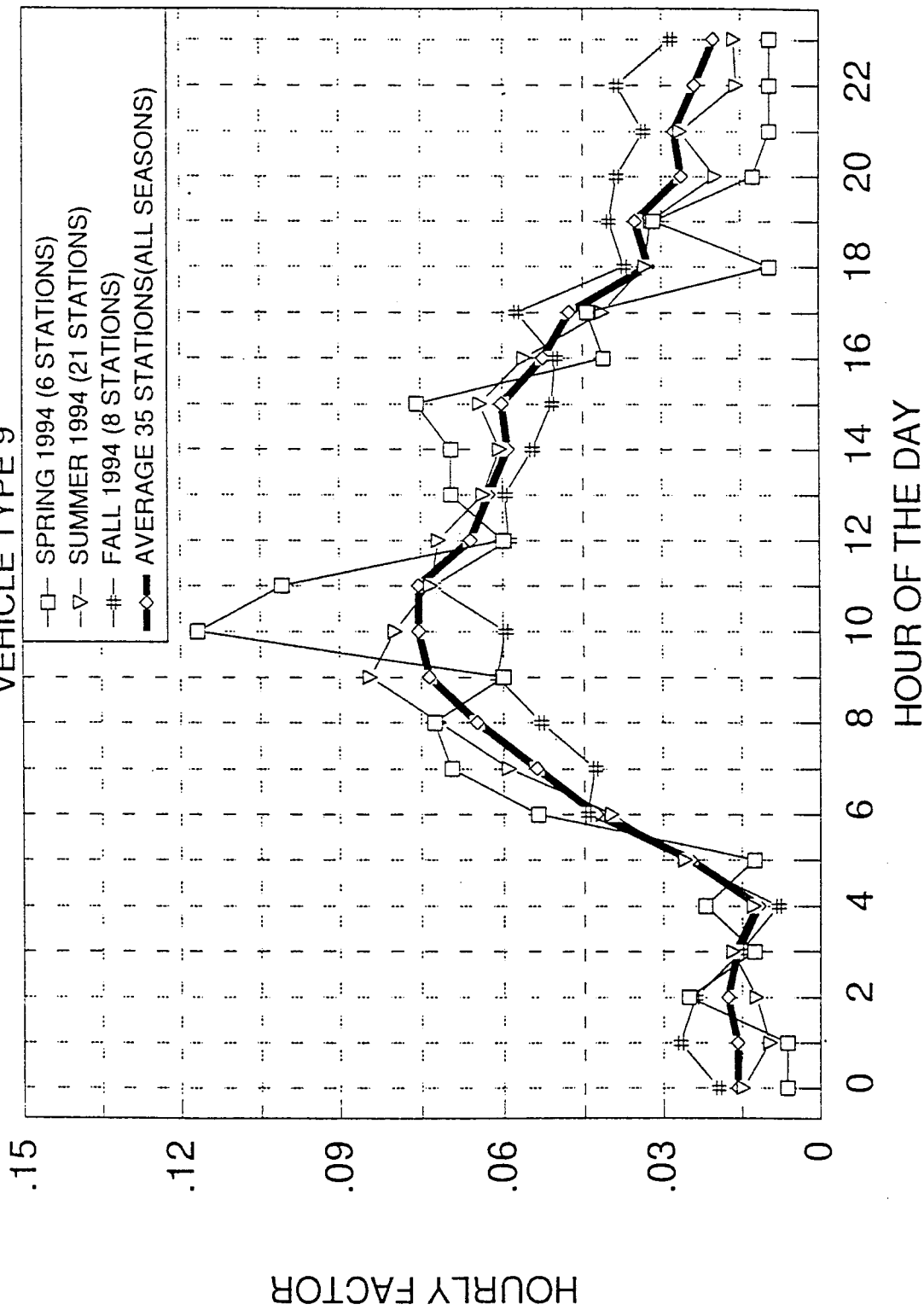


FIGURE 56

Automatic and Predicted Counts Compared to Manual Counts

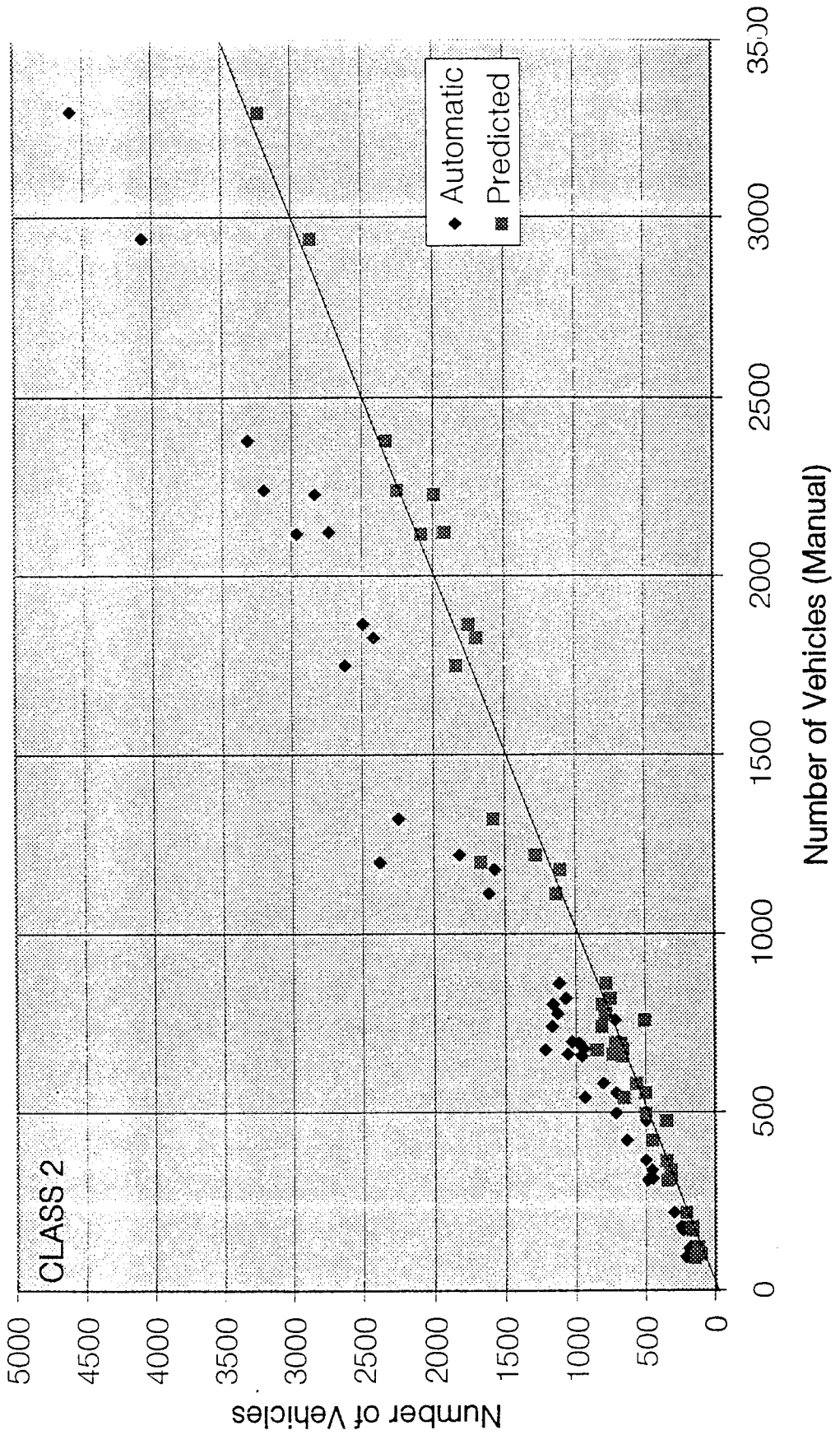


FIGURE 57
 Automatic and Predicted Counts Compared to Manual
 Counts

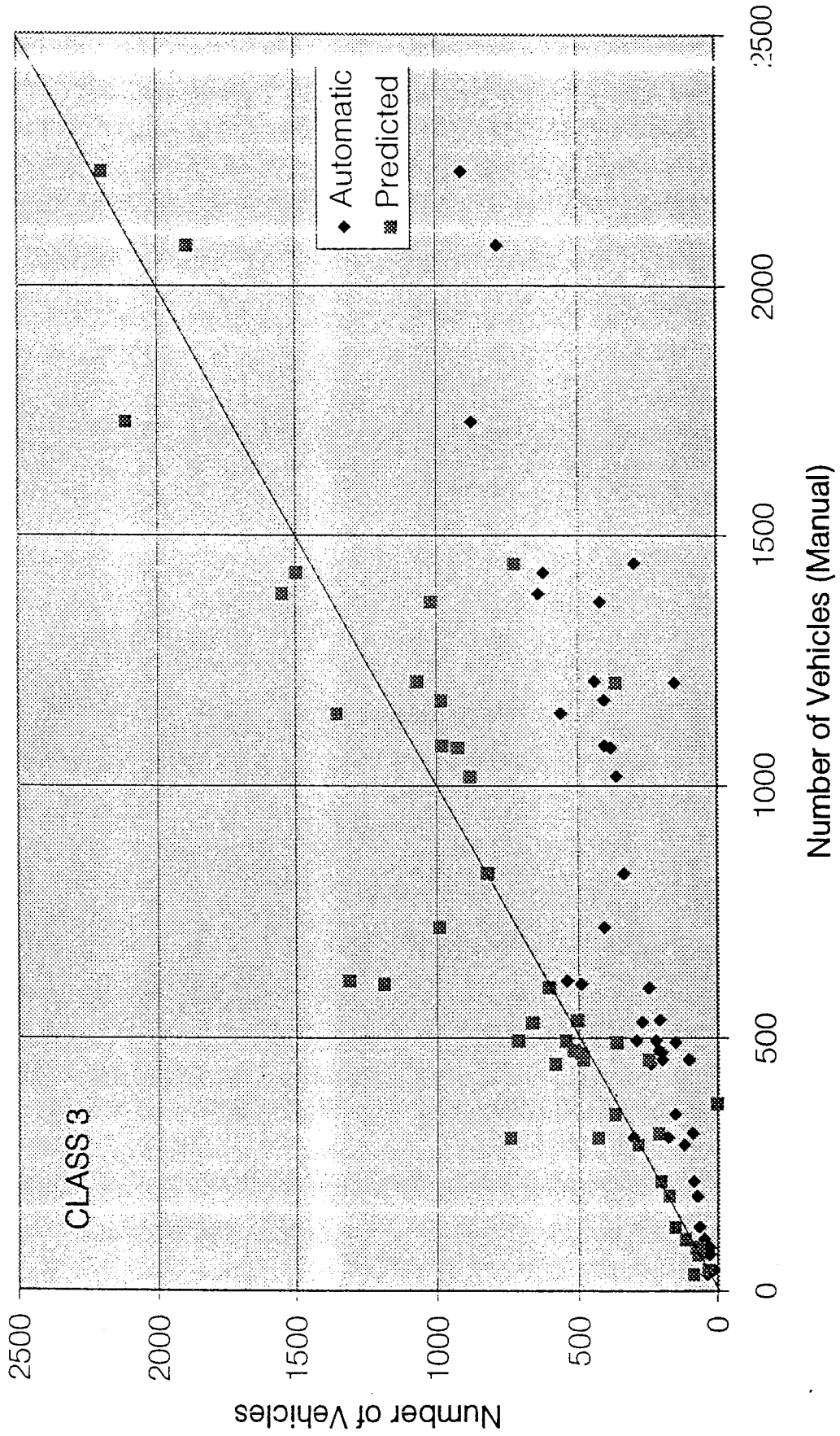


FIGURE 58
 Automatic and Predicted Counts Compared to Manual
 Counts

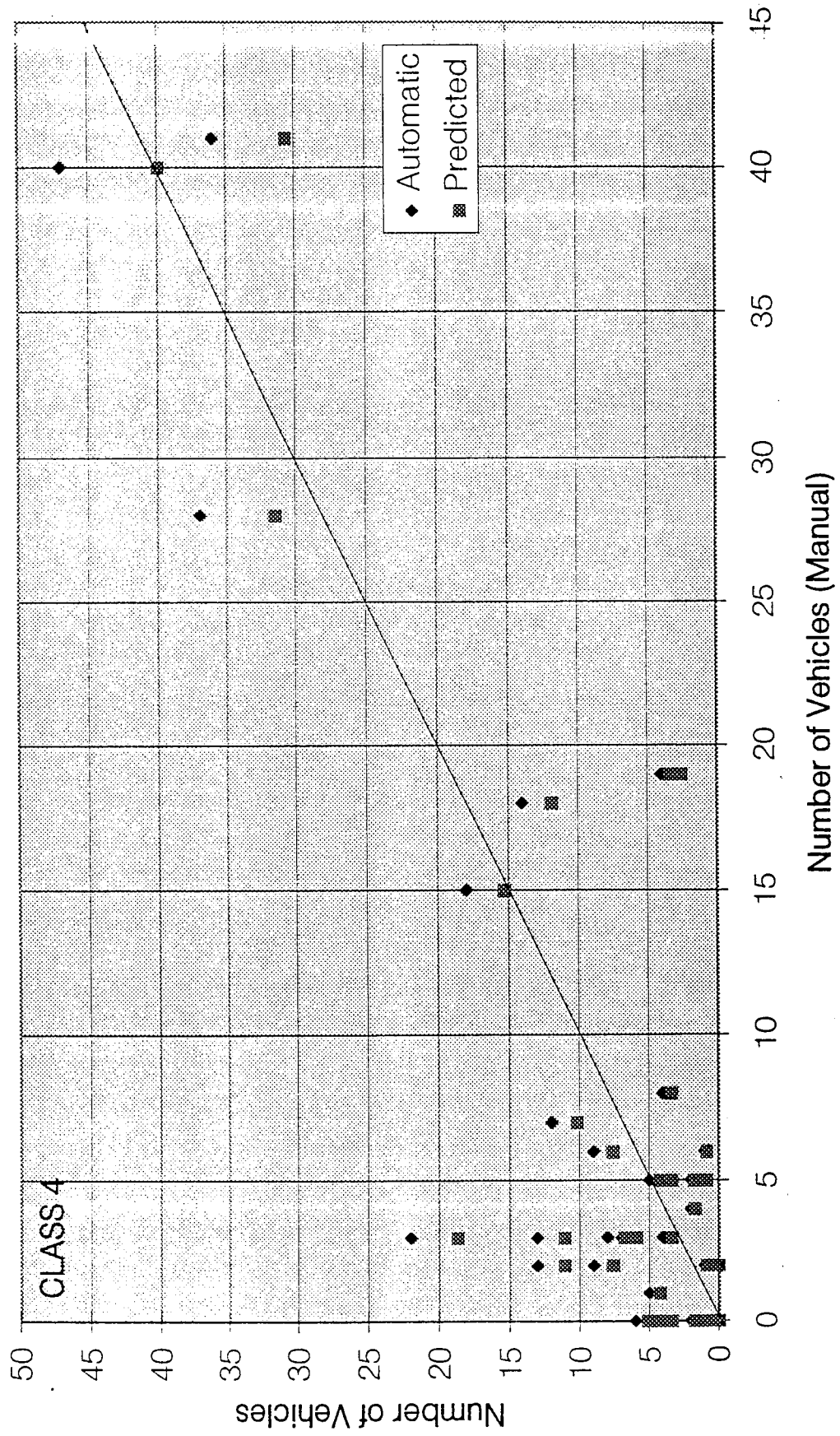


FIGURE 59
**Automatic and Predicted Counts Compared to
 Manual Counts**

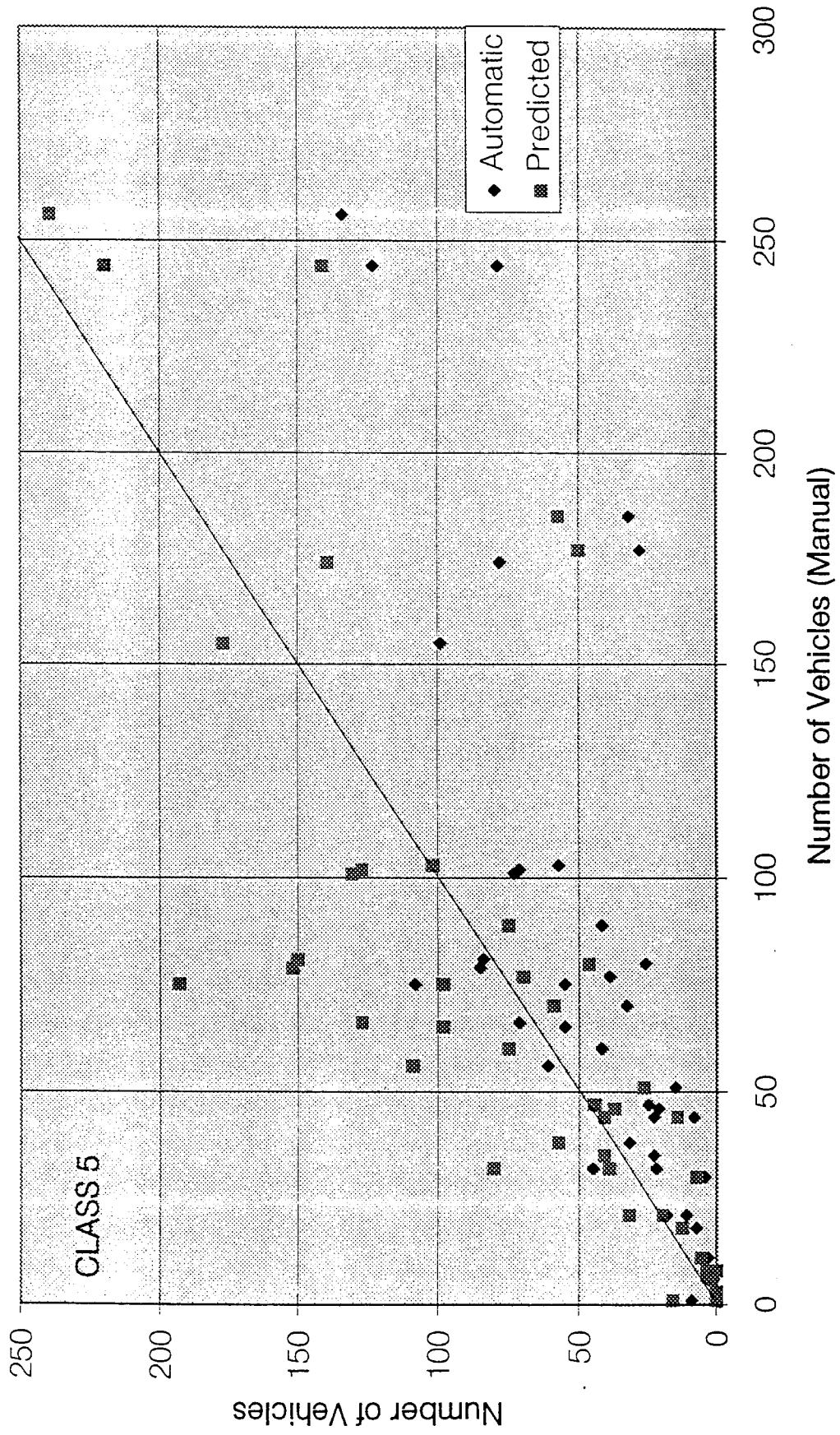


FIGURE 60

Automatic and Predicted Counts Compared to Manual Counts

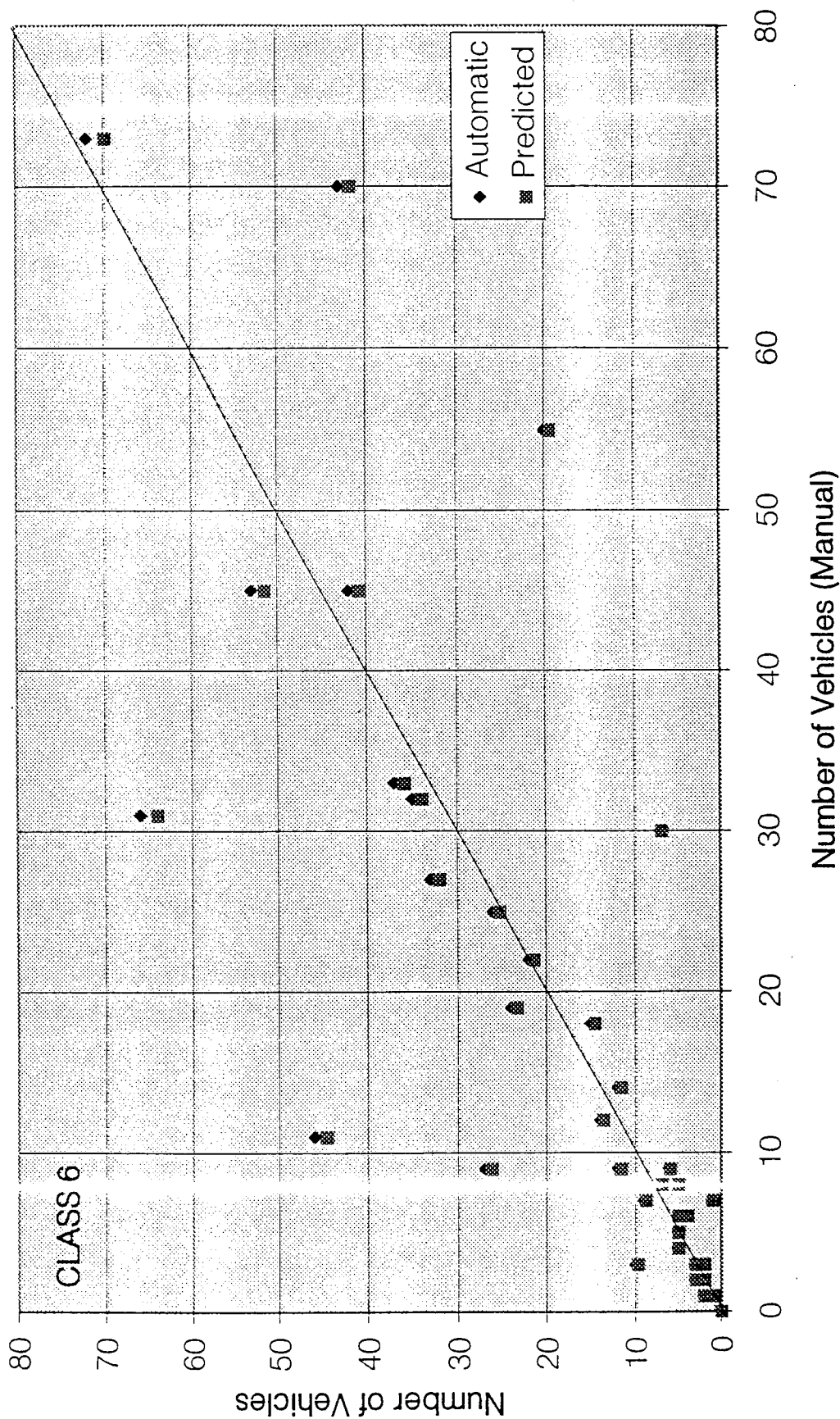


FIGURE 61

Automatic and Predicted Counts Compared to Manual Counts

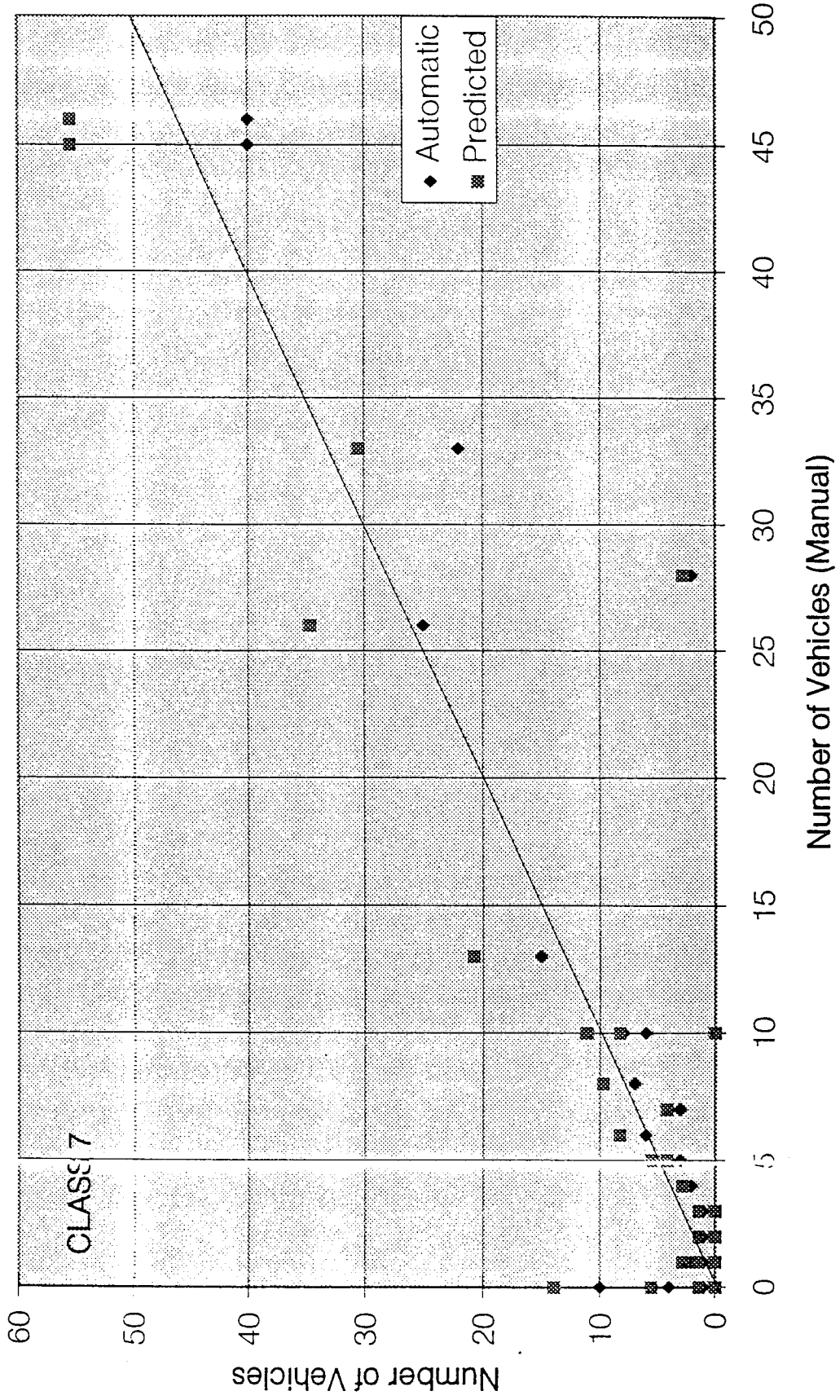


FIGURE 62

Automatic and Predicted Counts Compared to Manual Counts

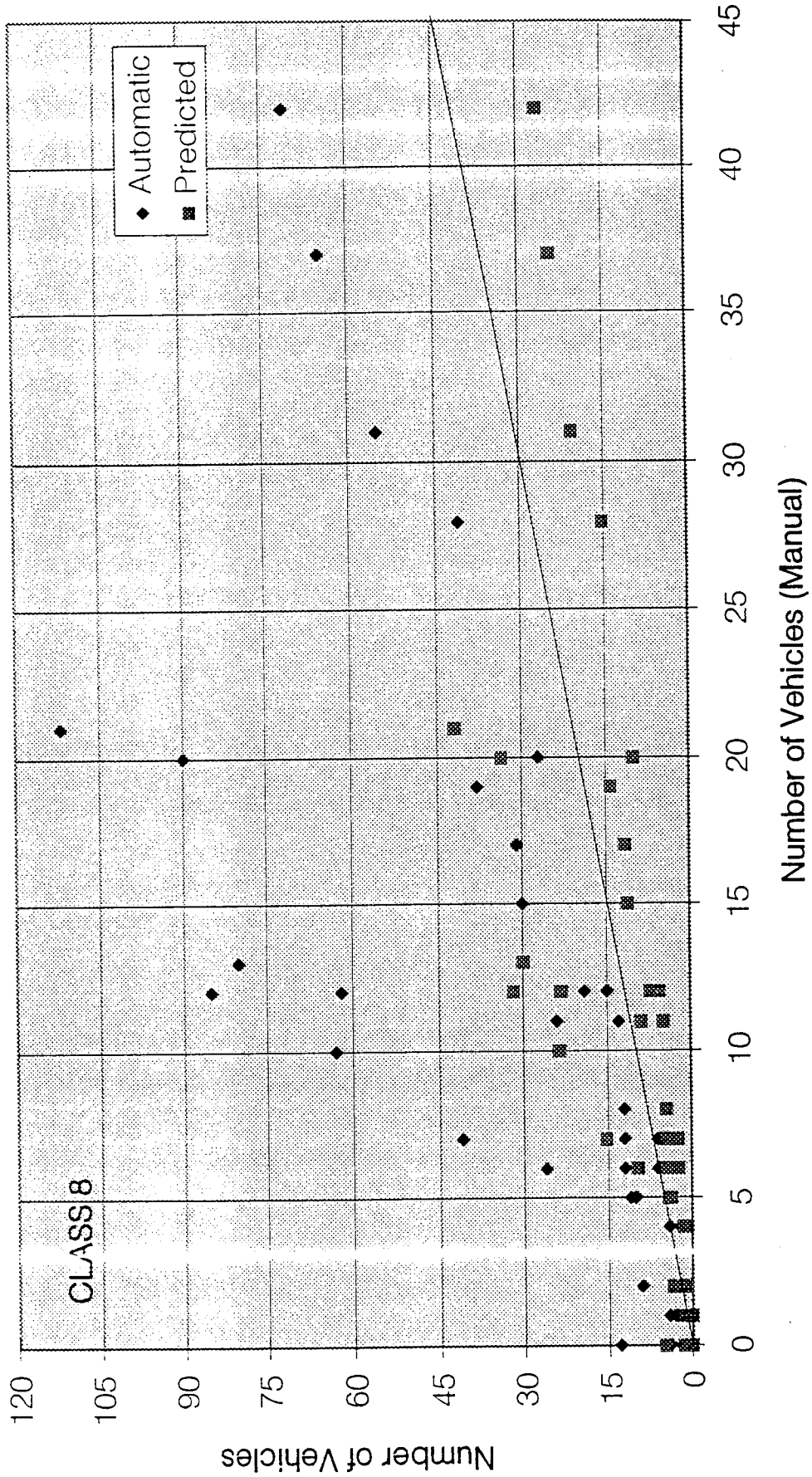


FIGURE 63
Automatic and Predicted Counts Compared to
Manual Counts

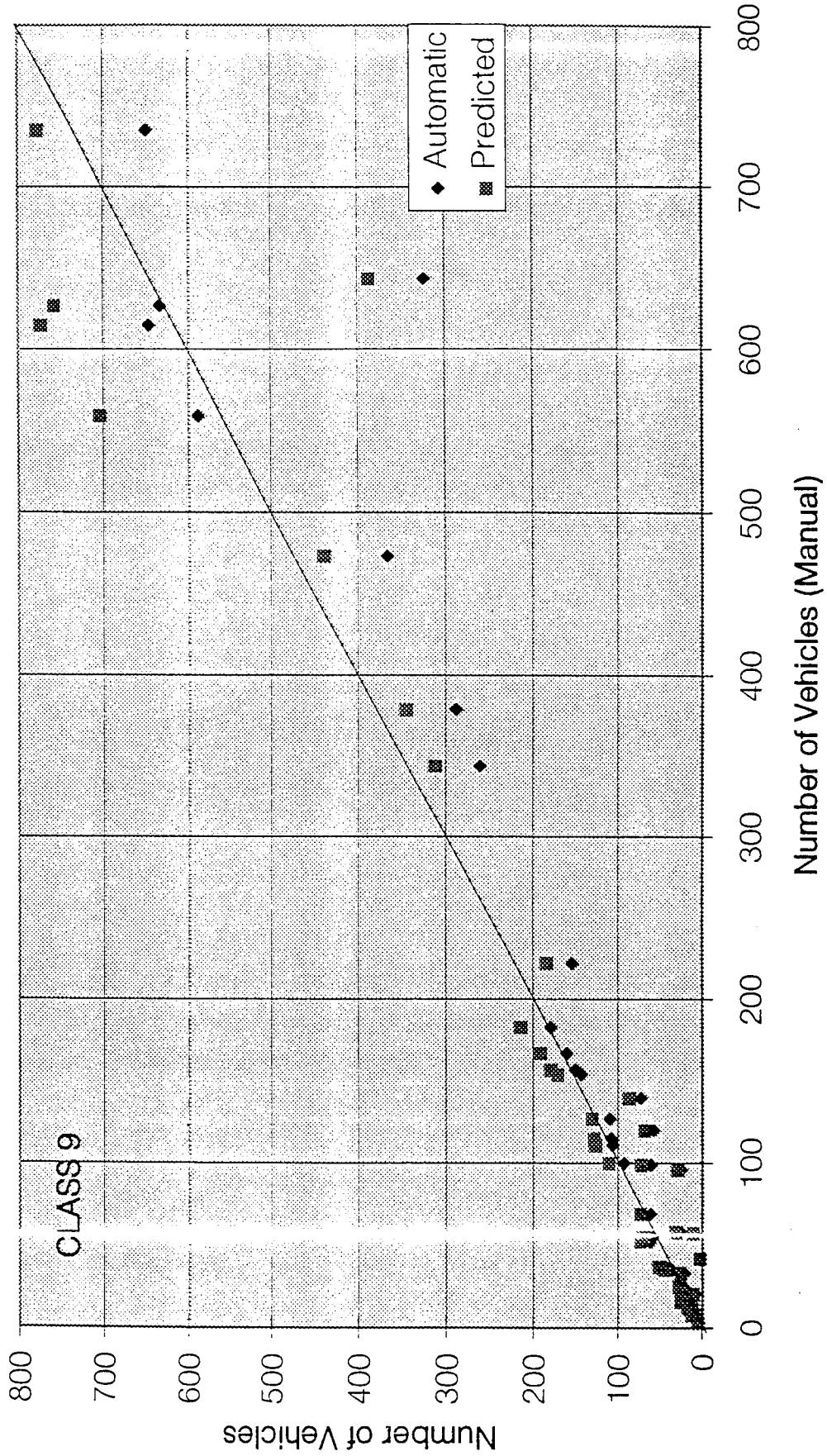


FIGURE 64

Automatic and Predicted Counts Compared to Manual Counts

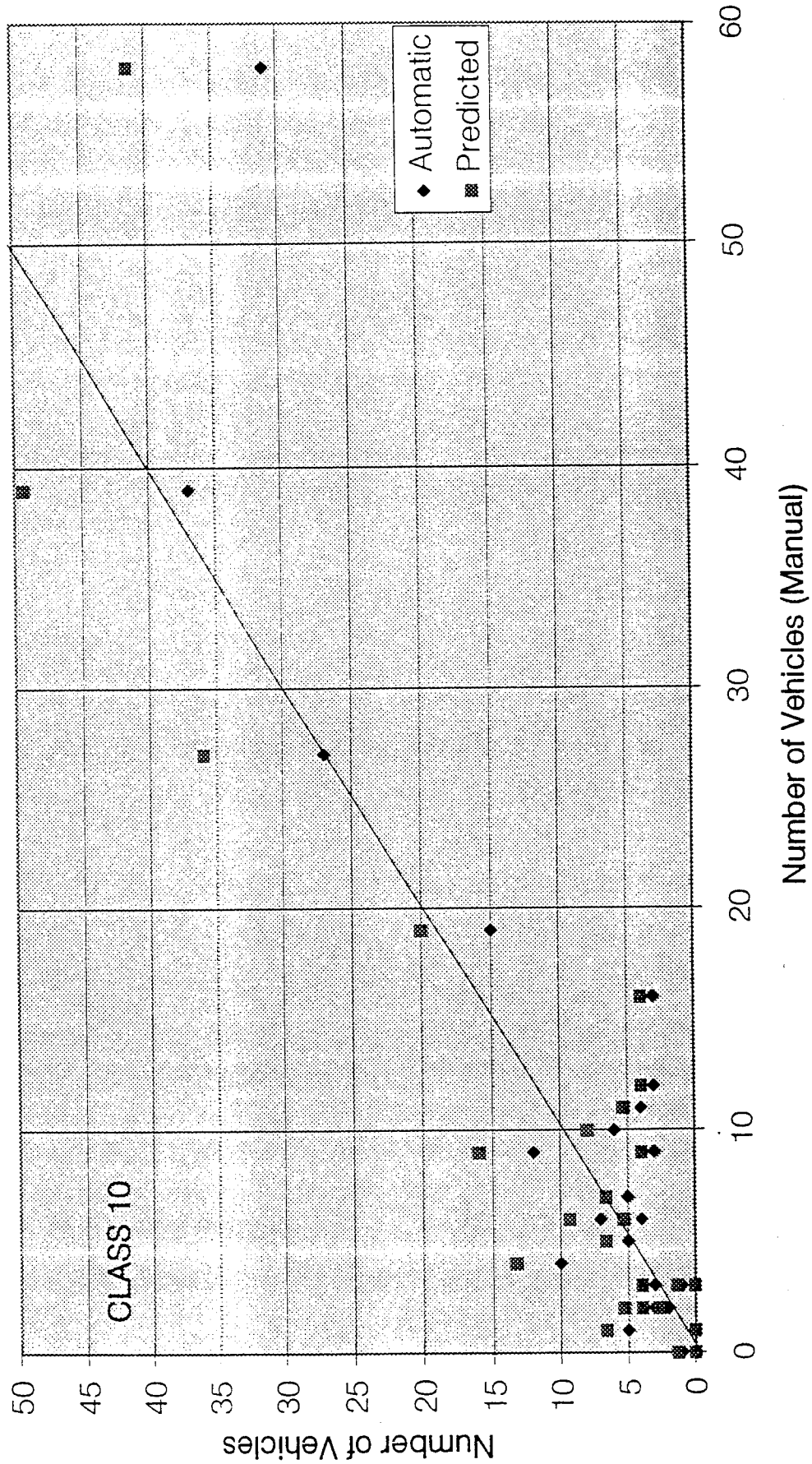
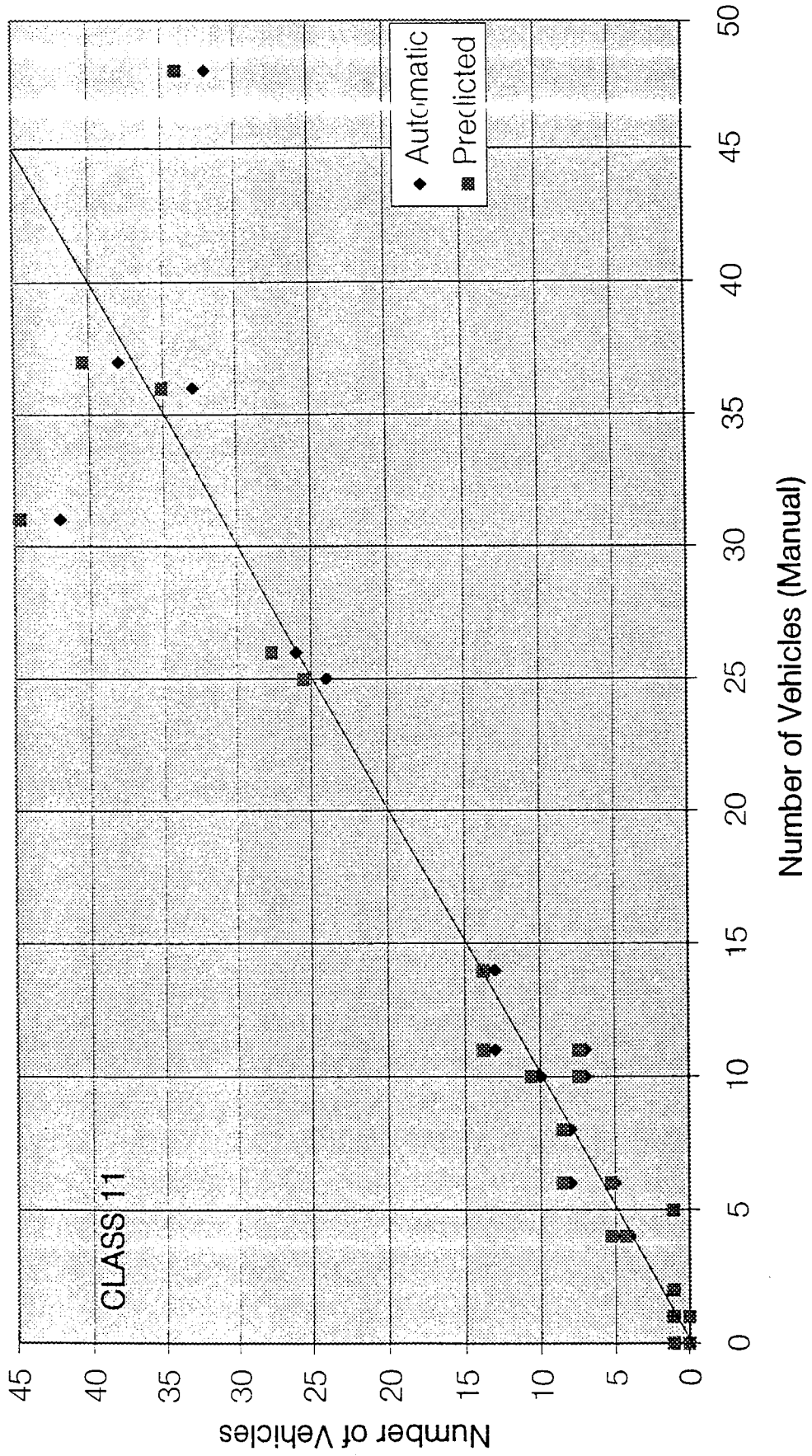


FIGURE 65

Automatic and Predicted Counts Compared to Manual Counts



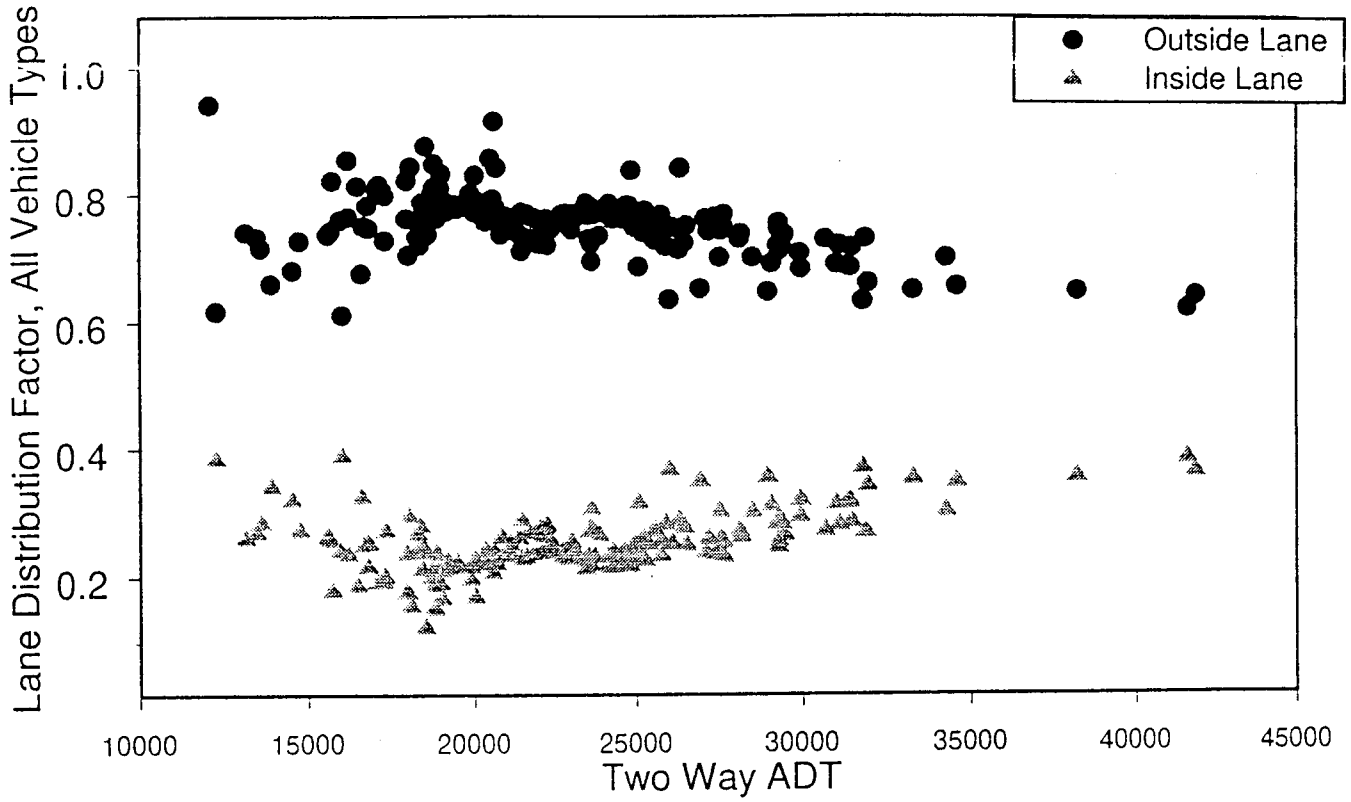


Figure 66a. 4-lane Interstate, All Vehicle Types, Lane Distribution Factor vs. ADT

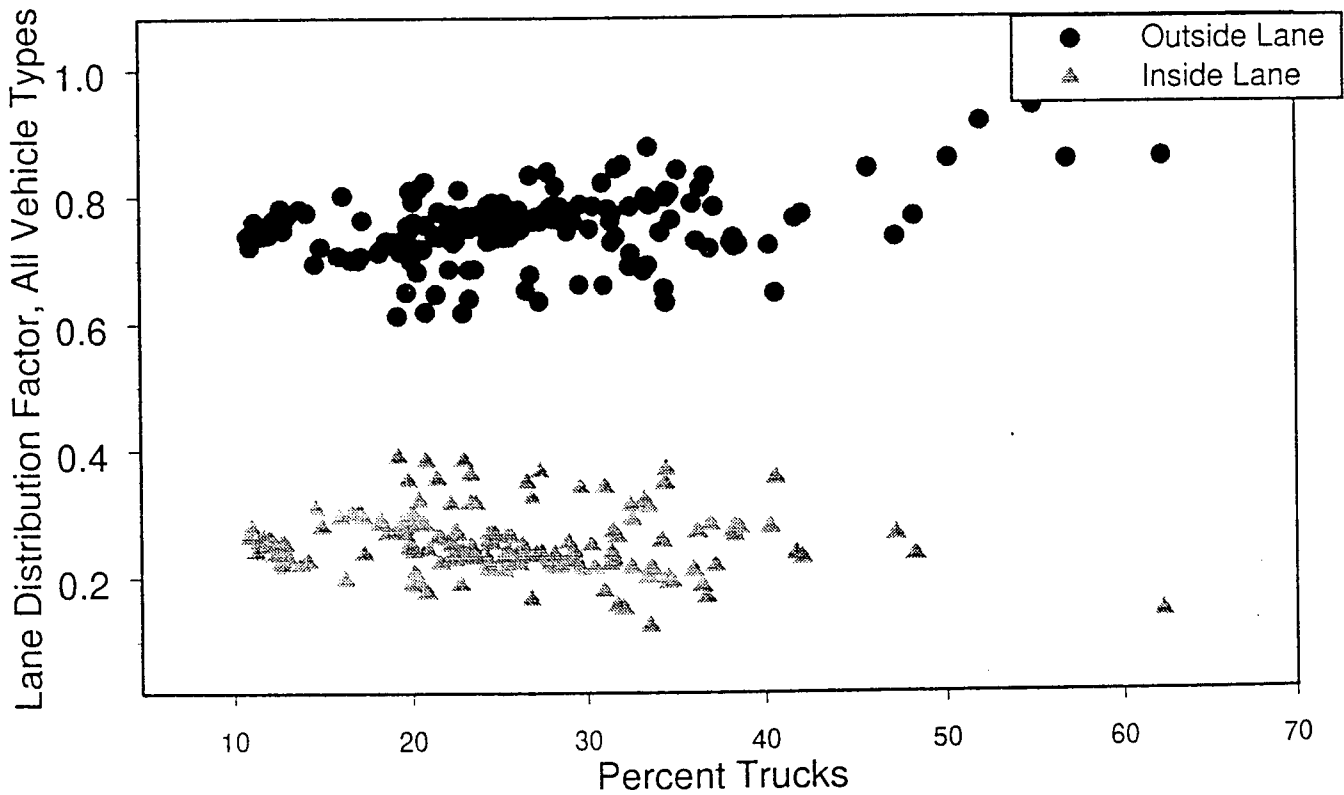


Figure 66b. 4-lane Interstate, All Vehicle Types, Lane Distribution Factor vs. Percent Trucks

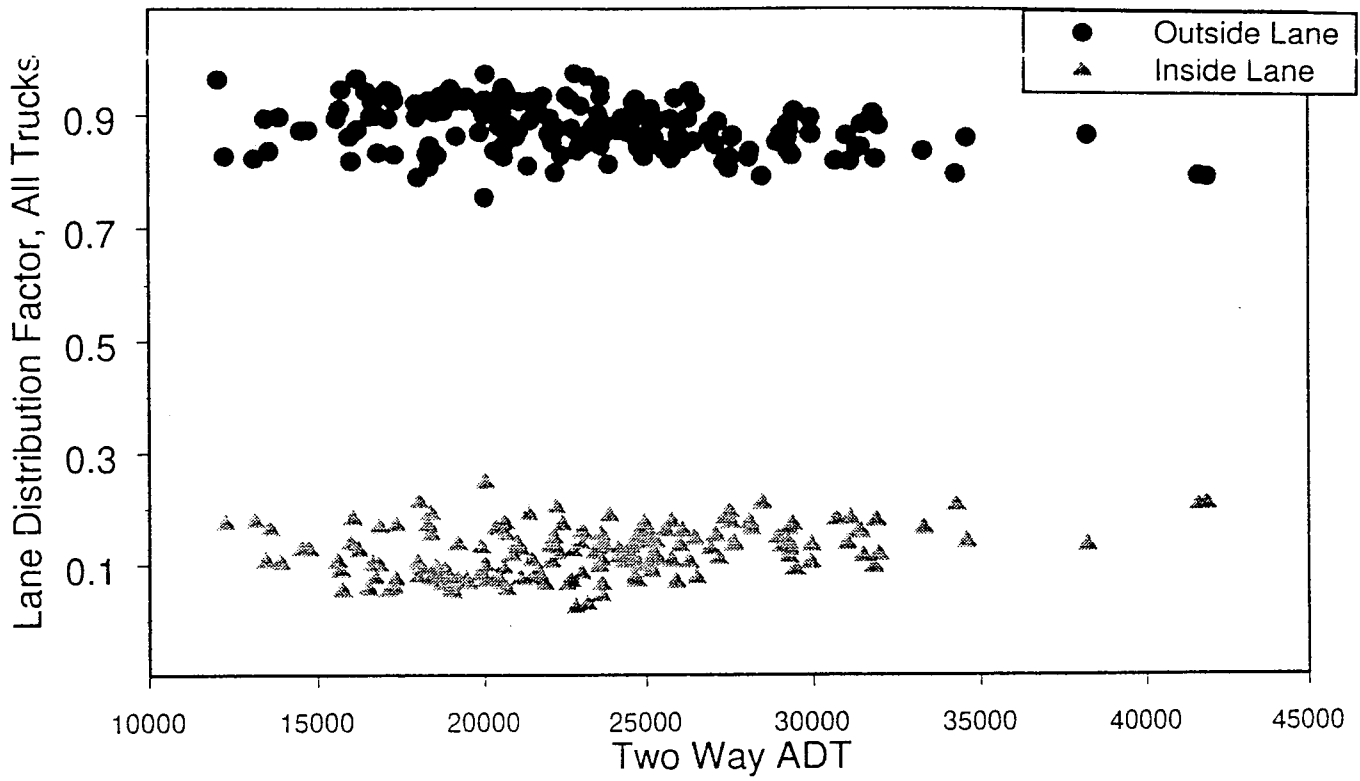


Figure 67a. 4-lane Interstate, All Trucks, Lane Distribution Factor vs. ADT

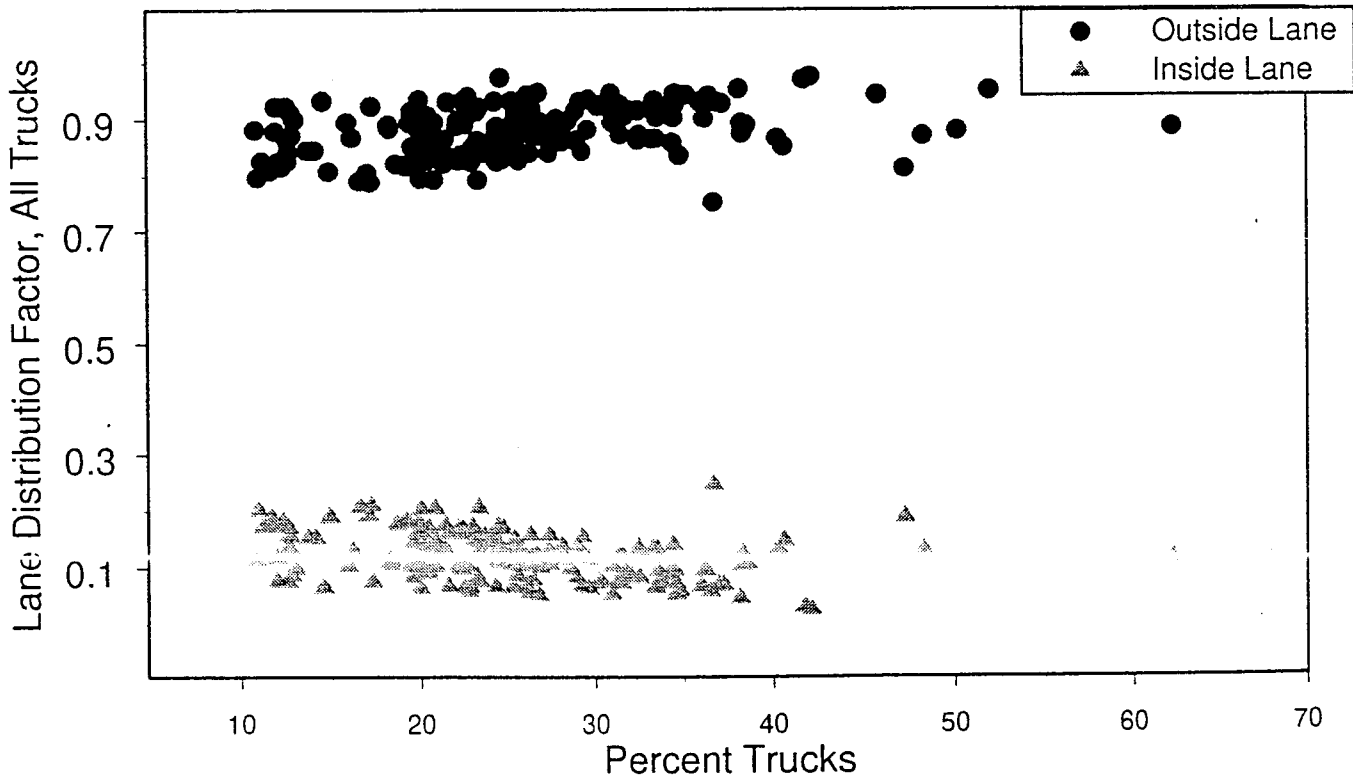


Figure 67b. 4-lane Interstate, All Trucks, Lane Distribution Factor vs. Percent Trucks

Lane Distribution Factor, 4-Lane Interstate, All Cars

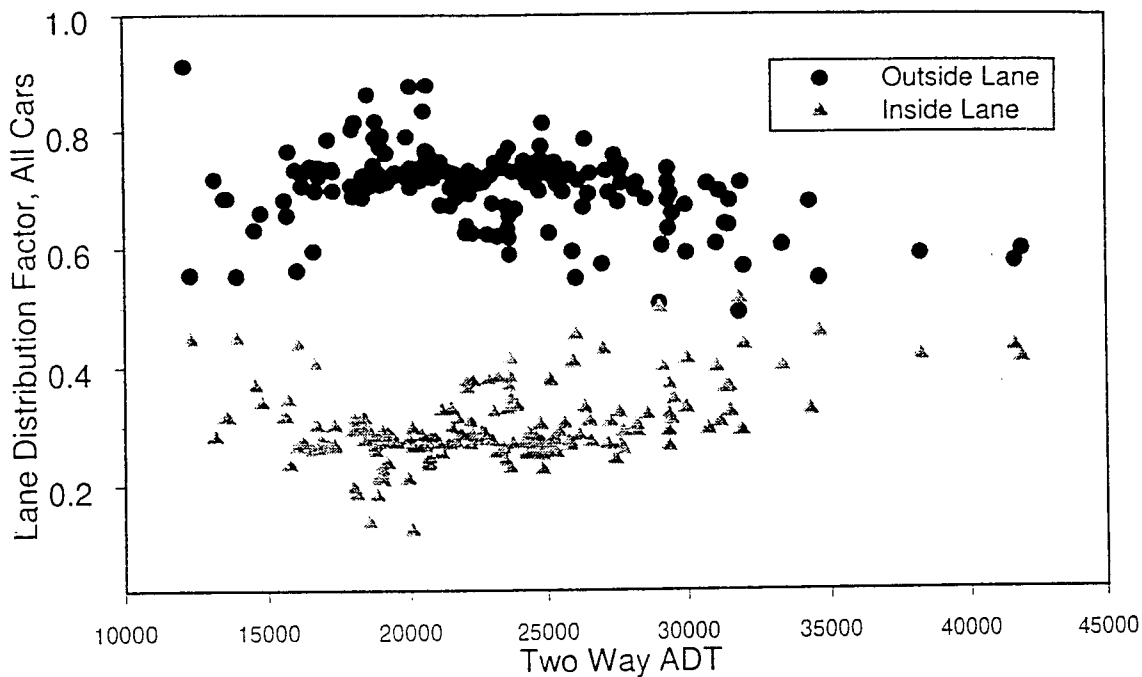


Figure 68a. 4-lane Interstate, All Cars, Lane Distribution Factor vs. ADT

Lane Distribution Factor, 4-Lane Interstate, All Cars

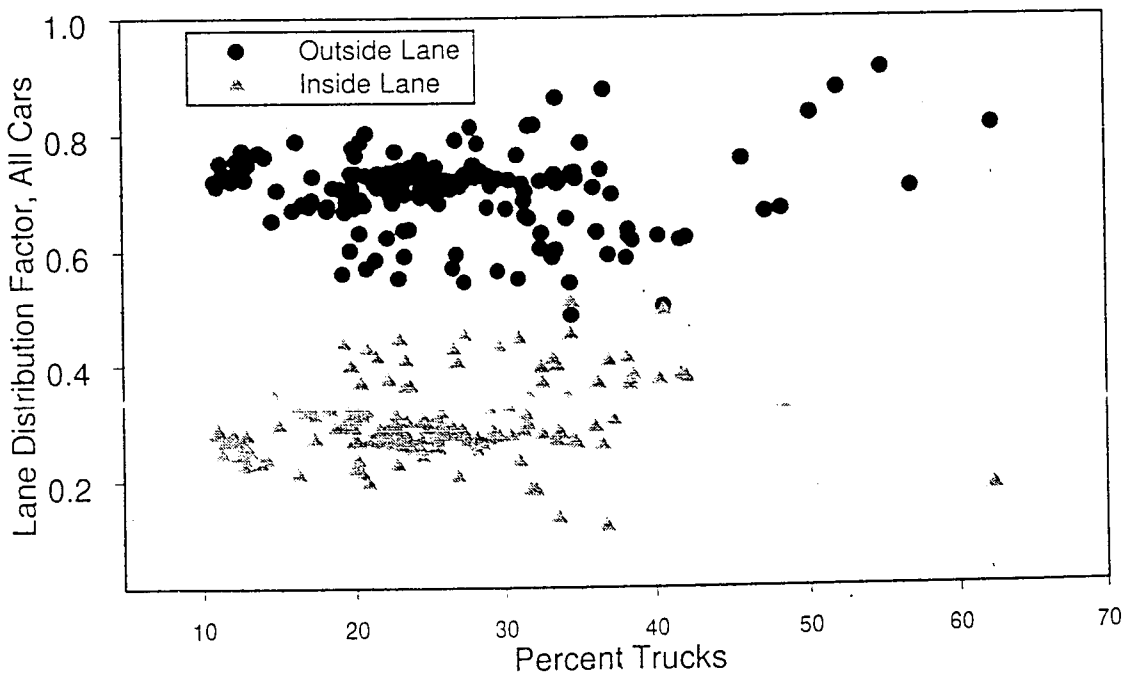


Figure 68b. 4-lane Interstate, All Cars, Lane Distribution Factor vs Percent Trucks

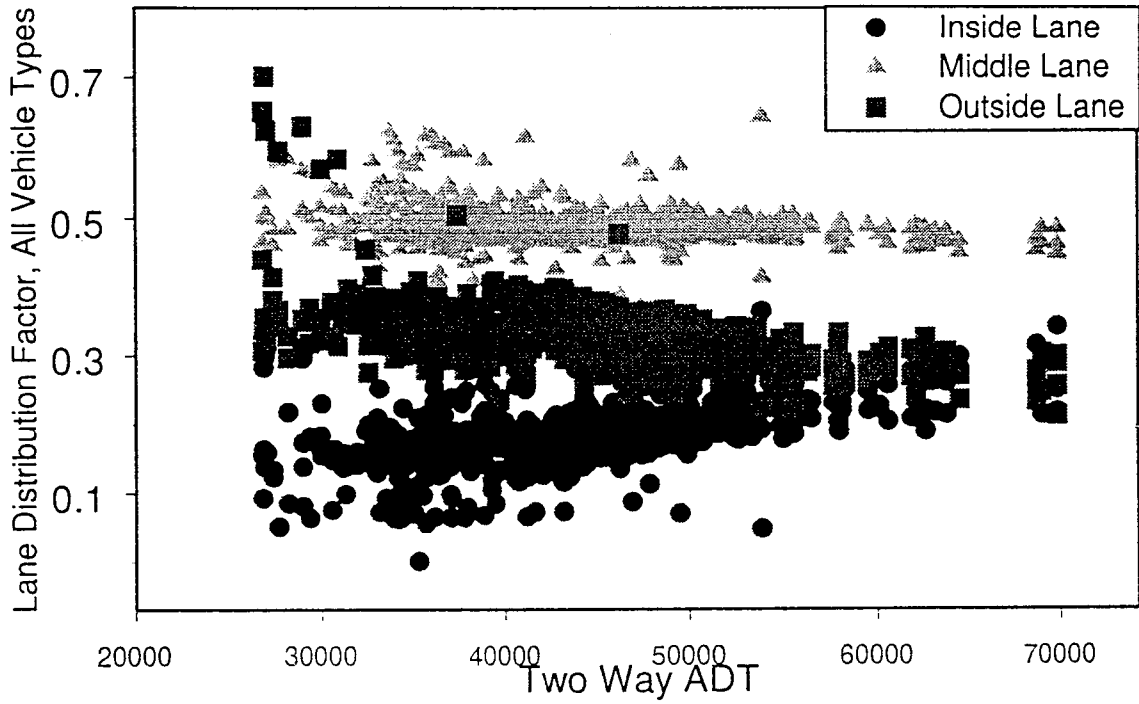


Figure 69a. 6-lane Interstate, All Vehicle Types, Lane Distribution Factor vs. ADT

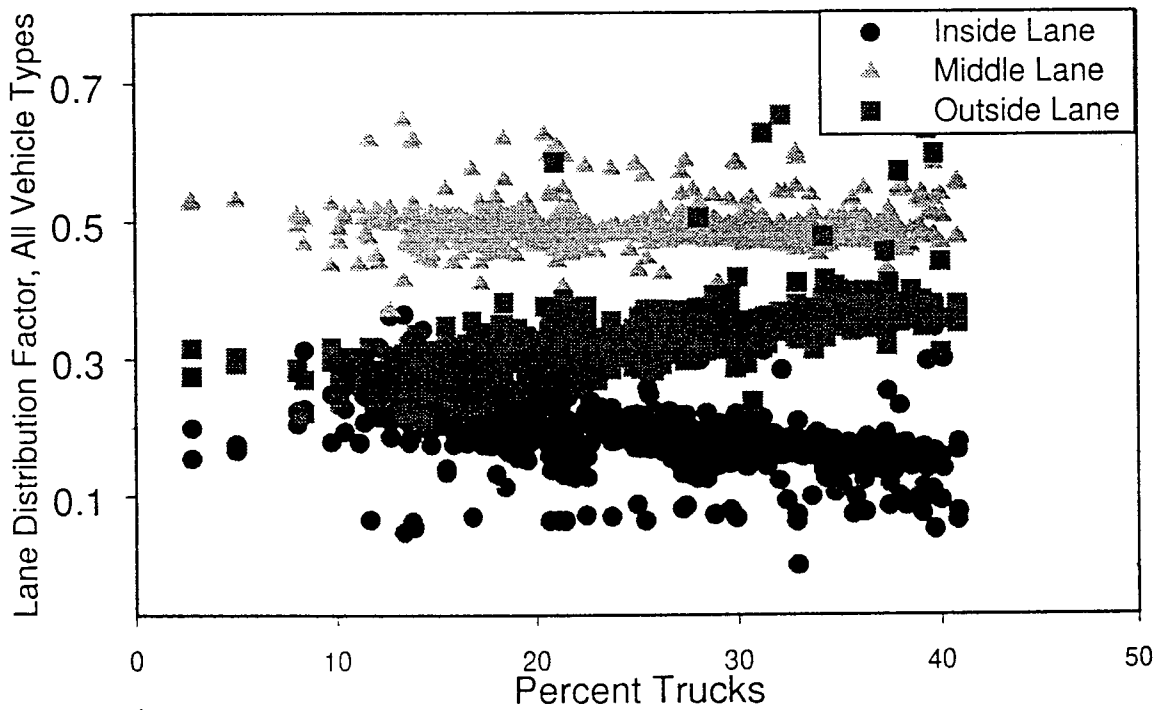


Figure 69b. 6-lane Interstate, All Vehicle Types, Lane Distribution Factor vs. Percent Trucks

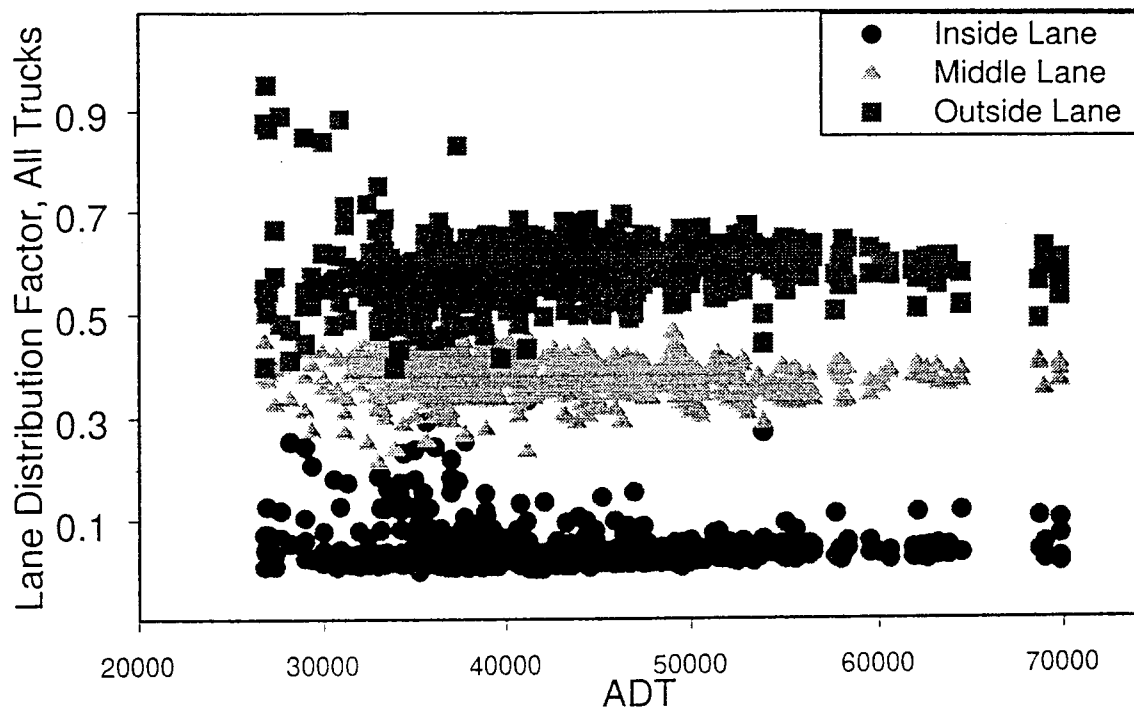


Figure 70a. 6-lane Interstate, Lane Distribution Factor vs ADT

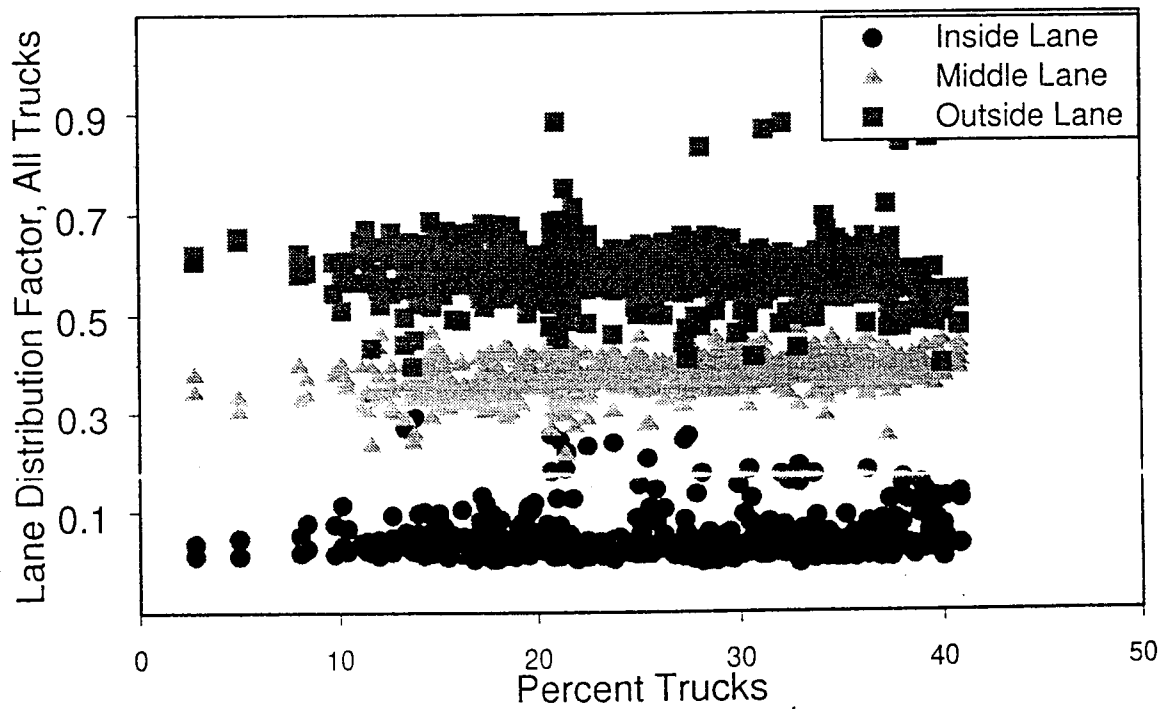


Figure 70b. 6-lane Interstate, Lane Distribution Factor vs ADT

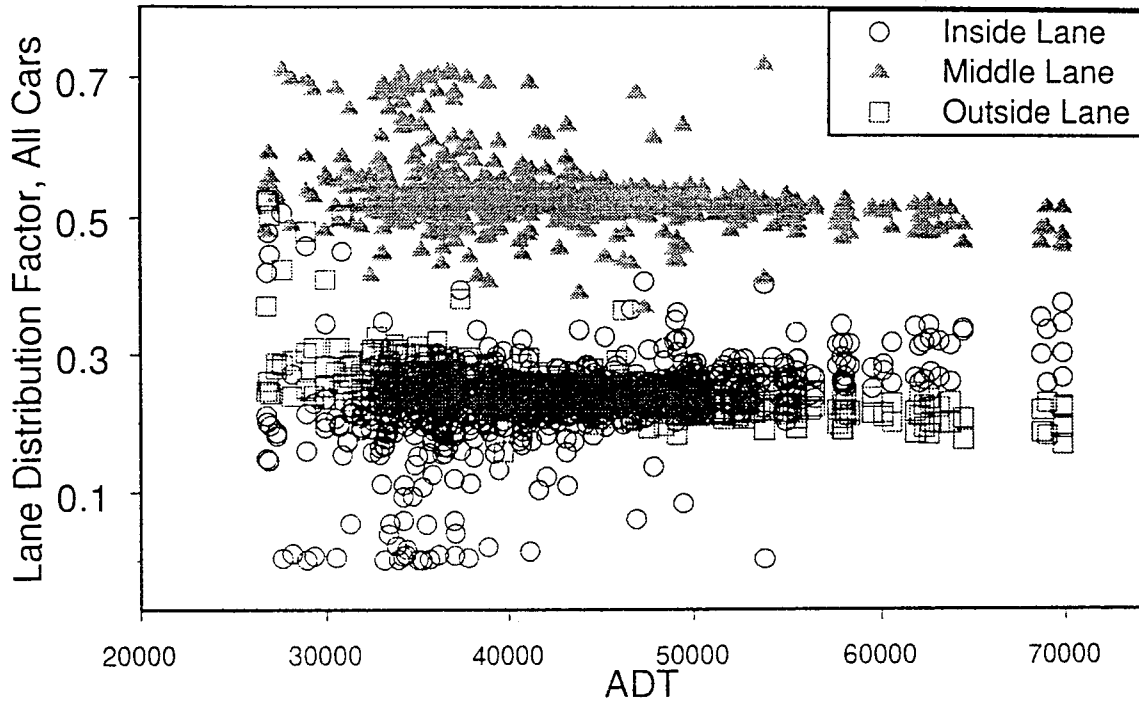


Figure 71a. 6-lane Interstate, All Cars, Lane Distribution Factor vs. ADT

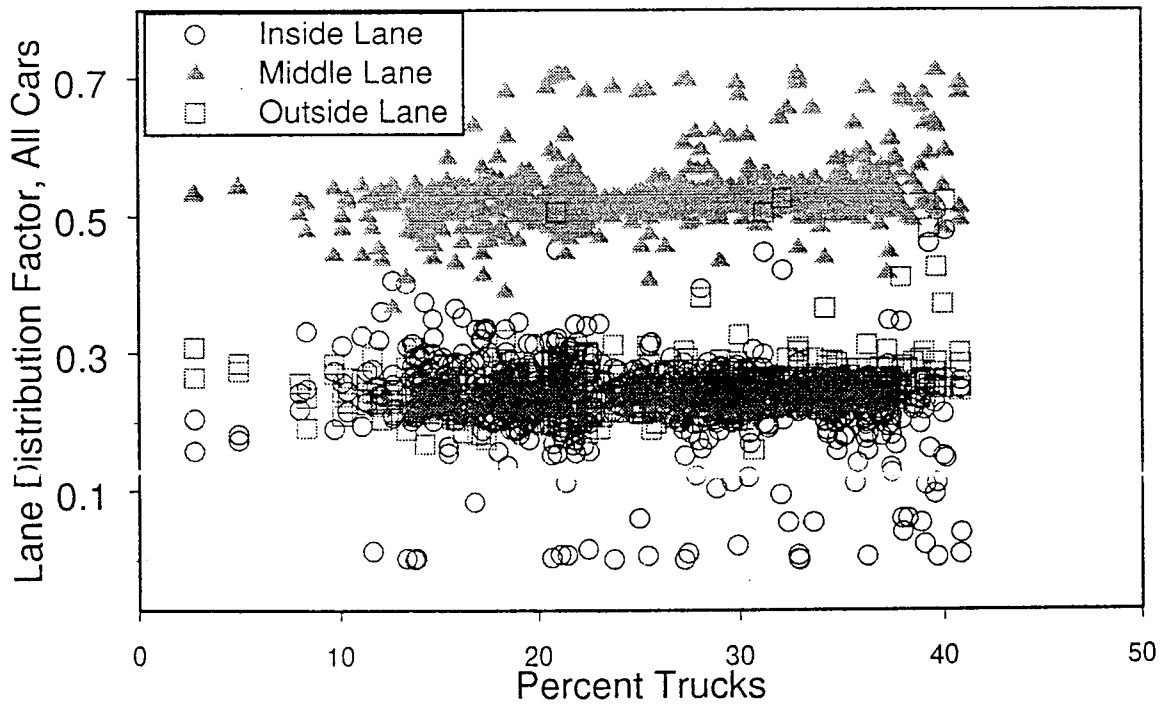


Figure 71b. 6-lane Interstate, All Cars, Lane Distribution Factor vs Percent Trucks

Glossary

- AADT** The total traffic volume during a 356-day period divided by 365 to yield the annual average daily traffic.
- AASHTO** The American Association of State Highway and Transportation Officials.
- ADT** The total volume during a given period (in whole days) greater than one day and less than one year, divided by the number of days in that period.
- ATR** Automatic Traffic Recorders. These are permanently placed at specific locations throughout the state to record the distribution and variation of traffic flow by hours of the day, days of the week, and months of the year from year to year.
- AVC** Automatic vehicle classifiers. These are portable vehicle classifiers and recorders.
- Counter** Any device which collects traffic characteristics data.
- ESAL** Equivalent Single Axleload. This is the damage caused to a highway pavement by one pass of a single axle with four tires carrying a total load on the axle of 18,000 pounds.
- Factor** A number that represents a ratio of one number to another number. The factors are used to adjust traffic volumes. In this report, seasonal, monthly, hourly, and lane distribution factors are developed.
- FHWA** Federal Highway Administration.
- Functional Class** The classification of highways into different operational systems based on the character of service they provide.
- HPMS** Highway Performance Monitoring System. A program by the FHWA to assess the current condition of the nation's highways and to evaluate future programming needs. HPMS relies heavily on strategically located sample highway sections which represent all of the highways in a given area.
- Lane Distribution Factor** The percent of total vehicles or one vehicle type (in one direction) in a particular lane of a multi-lane facility.

MADW Average volume of a particular vehicle type for a particular day of the week (Sunday, Monday..., etc.) determined from a single month's data.

MAE Mean Absolute Error. This error is the average of the absolute values of the differences between the estimate of a variable and the true value of the variable expressed as a percentage of the true value of the variable.

Rural Outside the FHWA approved urban limits.

SHRP Strategic Highway Research Program. This was a highway research program funded by Congress in the mid-1980's with a total budget of \$150,000,000. The major areas of research were Asphalt, Concrete and Structures, Highway Operations, Maintenance, and Long-Term Pavement Performance (LTPP).

TMV Total Monthly Volume. In this report, the MADWs were averaged for each month and then multiplied by the number of days of the month to estimate the total monthly volume.

Truck Any heavy vehicle described in FHWA Scheme F (Classes 4-13; i.e., buses and trucks with six or more tires. Class 14 is available for state definition of a special truck configuration not recognized by the scheme).

Urban Inside the FHWA approved urban limits.

VCR Vehicle Classification Recorder. These are portable counters that record volumes and vehicle classifications.

Vehicle Class The identification of a particular vehicle according to FHWA's Scheme F. Kentucky uses the following vehicle classes:

- | | |
|---------------------------------|-------------------------------------|
| 1. Motorcycles | 8. 4 or less Axles, Single Trailer |
| 2. Automobiles | 9. 5-Axle, Single Trailer |
| 3. Pickup Trucks | 10. 6 or more Axles, Single Trailer |
| 4. Buses | 11. 5 or less Axles, Multi-Trailer |
| 5. 2-Axle, 6-Tired, Single Unit | 12. 6-Axle, Multi-Trailer |
| 6. 3-Axle, Single Unit | 13. 7 or more Axles, Multi-Trailer |
| 7. 4 or more Axles, Single Unit | 14. Coal Trucks (not Scheme F) |

Vehicle Type See *Vehicle Class*.

VMT Vehicle-Miles Traveled. One vehicle traveling one mile equals one vehicle-mile of travel. Ten vehicles traveling 10 miles each equals 100 vehicle-miles of travel.

WIM Weigh-in-Motion. The process of estimating a moving vehicle's gross weight and the portion of that weight that is carried by each wheel, axle, or axle group, or combination thereof, by measurement and analysis of dynamic forces by its ties to a measuring device.

Appendix A

Comparison of Manual Classification Counts with Automatic Classification Counts

ERROR FUNCTION

CLASS 1	0.455
CLASS 2	0.704
CLASS 3	2.414
CLASS 4	0.850
CLASS 5	1.788
CLASS 6	0.971
CLASS 7	1.387
CLASS 8	0.375
CLASS 9	1.198
CLASS 10	1.333
CLASS 11	1.064
CLASS 12	0.525
CLASS 13	0.143
CLASS 15	0

STATION: 106P22 I-64 LANE 1

7/24/96 6 HOURS

	MAN	AUTO	PREDICT	M-A	SQ M-A	M-P	SQ M-P
CLASS 1	4	2	1	2	4	3	10
CLASS 2	1864	2492	1754	-628	394384	110	12122
CLASS 3	1144	561	1355	583	339889	-211	44316
CLASS 4	5	4	3	1	1	2	3
CLASS 5	174	78	139	96	9216	35	1192
CLASS 6	45	53	51	-8	64	-6	42
CLASS 7	7	3	4	4	16	3	8
CLASS 8	13	80	30	-67	4489	-17	288
CLASS 9	615	646	774	-31	961	-159	25310
CLASS 10	9	12	16	-3	9	-7	49
CLASS 11	25	24	26	1	1	-1	0
CLASS 12	0	2	1	-2	4	-1	1
CLASS 13	0	3	0	-3	9	0	0
CLASS 15	0	0	0	0	0	0	0
SUM SQS					749047		83340

ERROR FUNCTION

CLASS 1	0.455
CLASS 2	0.704
CLASS 3	2.414
CLASS 4	0.850
CLASS 5	1.788
CLASS 6	0.971
CLASS 7	1.387
CLASS 8	0.375
CLASS 9	1.198
CLASS 10	1.333
CLASS 11	1.064
CLASS 12	0.525
CLASS 13	0.143
CLASS 15	0

STATION: 106P22 I-64 LANE 4

7/24/96 6 HOURS

	MAN	AUTO	PREDIC	M-A	SQ M-A	M-P	SQ M-P
CLASS 1	10	6	3	4	16	7	53
CLASS 2	2381	3315	2333	-934	872356	48	2291
CLASS 3	1443	300	724	1143	1306449	719	516474
CLASS 4	5	2	2	3	9	3	11
CLASS 5	244	79	141	165	27225	103	10554
CLASS 6	31	66	64	-35	1225	-33	1094
CLASS 7	13	15	21	-2	4	-8	61
CLASS 8	42	71	27	-29	841	15	237
CLASS 9	734	649	778	85	7225	-44	1908
CLASS 10	6	7	9	-1	1	-3	11
CLASS 11	26	26	28	0	0	-2	3
CLASS 12	2	3	2	-1	1	0	0
CLASS 13	0	1	0	-1	1	0	0
CLASS 15	0	0	0	0	0	0	0
SUM SQS					2215353		532696