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1998 HIGHWAY COST ALLOCATION UPDATE: TECHNICAL REPORT

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<b>16. Abstract</b> <p>This update of the highway cost allocation study is the eighth in a recent series begun in the early 1980's by the Kentucky Transportation Cabinet and the Kentucky Transportation Center. The primary objectives were to determine the level of revenue contribution and cost responsibility for each class of highway user. The base year of the study is FY 97; the most recent time period for which revenue and cost data were available. Highway user or travel activity for calendar year 1996 was the most recent available. A basic premise of the study was that only state maintained highways were of interest in recouping the costs expended to construct and maintain the system. In 1996, this system comprised 27,350 miles of the 73,170 miles of roads and streets in Kentucky, while accommodation 84 percent of all travel.</p> <p>There were 17 highway user classes with which revenue contribution and cost responsibility were associated. Primary sources of revenue included fuel taxes, registration fees, usage taxes, tolls, and other motor carrier and federal taxes and fees. Primary expenditure categories included construction (subdivided into 6 categories), maintenance and traffic, administration, and enforcement. Construction was subdivided into planning and design; right of way; utility relocation; grade, drain and surfacing; resurfacing; bridges; and miscellaneous.</p> <p>Results from the analysis indicate that cost responsibility is borne most heavily by cars and motorcycles with 45.74 percent; followed by heavy trucks with gross weights of 60,000 pounds or more at 26.22 percent. Pickups and other vehicles registered in the 6,000 pound category were responsible for 20.72 percent of the cost. The ratio of percentage revenue attributed to percentage cost allocated was also determined in the study. A ratio of one indicates that the revenue and cost percentages are in balance for a particular vehicle type. Cars (0.94), buses (0.78) and heavy trucks (0.91) contribute less revenue than their cost responsibility dictates.</p>					
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## EXECUTIVE SUMMARY

In recent years, costs of highway facilities have generally been considered to be the responsibility of highway users. Although the private sector has recently been called upon to assume more cost responsibility, highways are primarily financed from tax revenues and user tolls. A continuing task related to assessment of highway user fees is determination of the appropriate level of taxation for each class of highway user. Cost allocation in various forms has traditionally been a tool to achieve an equitable assignment of user responsibility.

This highway cost allocation study is the eighth in a recent series begun in the early 1980s by the Kentucky Transportation Cabinet and the Kentucky Transportation Center (formerly the Kentucky Transportation Research Program). Its primary objective is to determine the level of revenue contribution and cost responsibility for each class of highway user.

The base year for the study is fiscal year (FY) 1997, which is the most recent time period for which revenue and cost data are available. Highway use or travel activity is generally reported on a calendar-year (CY) basis, and CY 1996 has been used because it is the most recent year for which complete data are available. A basic premise of the study is that only the state-maintained system of highways is of interest to those attempting to recoup costs (by assigning them to the appropriate highway user) expended to construct and maintain the system. In CY 1996, the state-maintained highway system comprised approximately 27,350 miles of the 73,170 miles of roads and streets in Kentucky while accommodating approximately 84 percent of all travel in the state. The revenue and cost data reported herein reflect estimates of monies associated with managing only the state-maintained mileage.

Highway user classes, with which revenue contribution and cost responsibility are associated, total 17 including motorcycles, cars, buses, and 14 registered or declared weight classes of trucks. Primary sources of revenue attributed to the various classes of highway users include fuel taxes, registration or license fees, usage taxes, road tolls, other motor carrier taxes, other federal taxes, and miscellaneous taxes and fees. Primary expenditure categories include construction, maintenance and traffic, administration, and enforcement. Construction expenditures are further subdivided into planning and design; right of way; utility relocation; grade, drain, and surfacing; resurfacing; bridges; and miscellaneous.

Results from the analysis indicate that cost responsibility is borne most heavily by passenger cars and motorcycles (45.74 percent). Heavy trucks, those with gross weights of 60,000 pounds or more, are responsible for 26.22 percent of the cost. Pickups and other vehicles registered in the 6,000-pound category are responsible for 20.72 percent of the cost. Cost responsibility borne by all other groups totals 7.32 percent. Annual cost responsibilities in dollars and percentages for grouped classes of vehicles are shown in the following tabulation.

Vehicle type	Total annual cost responsibility	
	Thousand dollars	Percent
Cars	516,373	45.74
Buses	11,705	1.04
Pickups and vans	233,874	20.72
Light trucks	23,315	2.06
Medium trucks	47,709	4.23
Heavy trucks	295,991	26.22
Total	1,128,967	100.00

Revenues contributed by vehicle class show that the groups bearing the most cost responsibility also contribute the largest share of revenue. Using current Kentucky tax rates, passenger cars generate the most (42.03 percent), followed by heavy trucks (23.96 percent), and pickups and vans (24.76 percent). All other vehicles contribute a total of 9.25 percent. Annual revenue generated for the grouped classes of vehicles is presented in the following tabulation.

Vehicle type	Total annual revenue contribution	
	Thousand dollars	Percent
Cars	489,567	43.03
Buses	9,228	0.81
Pickups and vans	281,620	24.76
Light trucks	32,702	2.88
Medium trucks	51,913	4.56
Heavy trucks	272,620	23.96
Total	1,137,650	100.00

In order to evaluate taxation equity, the ratio of percentage revenue attributed to percentage cost allocated was determined as shown in the following tabulation. A ratio of 1.00 indicates that the revenue and cost percentages are in balance for a particular vehicle type.

Vehicle type	Ratio of percent revenue contributed to percent cost responsibility
Cars	0.94
Buses	0.78
Pickups and vans	1.19
Light trucks	1.39
Medium trucks	1.08
Heavy trucks	0.91

Highway user revenue on a revenue per vehicle-mile basis is another means to examine revenue contributions among vehicle types. Using the most recent data available from this analysis and other sources, it was determined that passenger cars contribute approximately 2.2 cents per mile in revenue as compared to 51.4 cents-per-mile operational costs for a passenger car in 1996 (1). For large trucks, the revenue contribution is about 10.2 cents per mile.

A secondary objective of the study was to determine the efficiency with which various Kentucky taxes are being collected. Due to the methods of collecting user taxes and our ability to assess them, the analysis focused on the weight-distance tax and user-reported fuel taxes. Considering the estimated vehicle-miles of travel and the mileage based tax rate on heavy vehicles, revenue generated by the weight-distance tax should have totaled approximately \$77,198,000 in FY 1997. This compares to actual receipts of \$63,024,000 or a collection efficiency of about 82 percent. The user-reported fuel taxes were compared to revenues using reported gallons of fuel consumed, estimates of fuel-tax revenues from the heavy-vehicle surtax and from the carrier fuel surtax.

After correcting to gallonages reported by the Revenue Cabinet, the efficiency of collection was slightly higher than last year at 101.5 percent for normal fuels. For the heavy vehicle surtax, the estimated rate of collection was only 20.0 percent; however, it should be noted that the low efficiency for collecting the heavy vehicle surtax can be attributed to the repeal of that tax effective July 15, 1996. The result was collection during only one quarterly tax reporting period. For the carrier surtax, the rate of collection was 68.8 percent. This trend can not be fully explained other than the significant increase in travel by some classes of heavy trucks and the decrease in reported revenue. The decrease in reported revenue can be partially attributed to the adoption of International Fuel Tax Agreement (IFTA) procedures which resulted in fuel taxes being with the IFTA agency where they are held before being transferred back to the states. It was noted that the reported efficiency of collection of the carrier surtax could be adversely with the built-in delays permitted in the process of transferring and documenting the results of surtax disbursements.





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## INTRODUCTION

In the United States, government bears primary responsibility for providing and maintaining public roads and streets. Although the private sector has recently been called upon to shoulder more of the load, highways are largely financed from tax revenues and user tolls. Primary goals of those responsible for drafting highway tax legislation include an equitable assignment of responsibility to various groups of taxpayers and an efficient system for tax administration. Highway cost allocation studies have traditionally sought to assure that the goal of equity is met.

Primary objectives of the current highway cost allocation study--the eighth of a recent series begun in 1982--include the following:

- to determine an equitable assignment of cost responsibility to the various classes of highway users in Kentucky;
- to estimate revenue contributions from these classes based on current taxation policy;
- to determine the extent to which each user class is meeting its cost responsibility;
- to evaluate trends in cost responsibility, revenue contributions, and revenue-to-cost ratio;
- to evaluate the equity of proposed changes to Kentucky tax statutes; and
- to evaluate the efficiency with which certain of Kentucky's taxes are being collected.

The current study is aimed toward management of the 27,350-mile, state-maintained highway system. The focus includes that portion of the revenue generated from road-user taxes which is expended on the state-maintained system. General-fund revenue is ignored because it is not relevant to the task of assigning cost responsibility among highway users<sup>1</sup>. User revenue which is used for off-system or non-highway purposes such as county/municipal aid and deficit reduction is also excluded primarily because conventional cost allocation strategies are either not appropriate or too imprecise for considering such expenditures. The relationship between the various revenue sources and the highway systems to which they are dedicated is illustrated schematically in Figure 1. This report focuses on elements in the highlighted (solid border) boxes.

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<sup>1</sup>To pay for roads, both general taxes and those scaled specifically to road use are collected. In Kentucky, almost all of the revenue for financing the state highway system is generated from either user taxes or from tolls. Since the issue of user vs. non-user (General Fund) responsibility is thus largely preempted, the focus of state highway cost allocation studies in Kentucky is narrowed to one of assigning cost responsibility to the several groups of road users.

The time period targeted for analysis was fiscal year (FY) 1997 covering the interval of July 1, 1996 through June 30, 1997. This is the most recent fiscal year for which detailed cost and revenue data are available (2). Travel information is collected and reported on a calendar year (CY) rather than a fiscal year basis and some, namely vehicle classification and weight data, requires a three-year cycle to complete statewide coverage. The convenience of using calendar-year travel data was judged to outweigh the potentially increased accuracy of projections to the fiscal year. Moreover, the proportionate amounts of travel by the various classes of highway users were not expected to significantly change from calendar year to its corresponding fiscal year. Accordingly, CY 1996 was taken as the base year for traffic data estimates. Actually, volume data from earlier years were also used as necessary to make projections to CY 1996, and all vehicle classification and weight data collected during CY's 1994, 1995, and 1996 were used.

## **STUDY MANAGEMENT**

The Kentucky Transportation Center at the University of Kentucky was responsible for this update of Kentucky's highway cost allocation study as it (or its predecessors) has been for all such studies beginning in 1982. As in other investigations which the Center performs for the Kentucky Transportation Cabinet, a Study Advisory Committee, comprised principally of Cabinet employees, provided oversight. Specific responsibilities of the Study Advisory Committee for the highway cost allocation studies have included the following:

- Set goals and objectives,
- Monitor and supervise activity,
- Identify proposals for change in highway taxation; and
- Review and approve reports.

The Study Advisory Committee met periodically with Center staff during the course of the study.

## **METHODOLOGY**

Methods used in the current study were similar to those reported in 1996 (3). Despite the fact that only secondary sources of data are needed, much of the required effort is devoted to data collection, processing, and summary. Primary data sources include the following:

- Revenue and expenditures: Financial Report to Management and Supplemental Information Schedules for the Period of July 1, 1996 to June 30, 1997
- Construction costs: Statewide Accounting and Reporting System (STARS) database (FY 1997)
- Highway mileage and traffic volumes: Highway Information System (HIS) database (CY 1996)
- Traffic classifications and weights: vehicle classification and weight databases (CY 1994-1996)



- Distribution of registered vehicle weights: statewide accident database (CY 1992-1996)
- Miscellaneous: Federal Highway Administration's (FHWA) 1995 Highway Statistics

A complex series of interrelated spreadsheets performs the necessary computations quickly and accurately. The 17 classes of road users (Table 1) reflect the distinctions commonly serving as the bases for differential taxation in Kentucky and elsewhere.

As explained earlier, focus is on the state-maintained portion of Kentucky's highway system. This subsystem is further divided by functional classification, land use (rural or urban), number of lanes, and, for portions of the analysis, terrain. The Cabinet's Highway Information System (HIS) provides much of the necessary data to define the highway system and to determine the traffic volumes operating on its specific elements. Vehicle classification and weight data from the Division of Transportation Planning allow traffic on each element to be accurately profiled.

Primary expenditure categories include construction, maintenance and traffic, administration, and enforcement. Construction expenditures are further subdivided into planning and design; right of way; utility relocation; grade, drain, and surfacing; resurfacing; bridges; and miscellaneous. Allocations of highway expenditures to the state-maintained highway system followed the guidelines of Table 2. Allocations of expenditures to the various user groups were based either on measures of use (vehicle-miles, axle-miles, or passenger-car-equivalent miles) or wear (equivalent-single-axle-load miles) according to the guidelines of Table 3. Passenger car equivalents provide a means for expressing the larger size and reduced performance of trucks in terms of an equivalent number of passenger cars. Equivalent single axle loads provide a means for expressing the relative pavement wear effects of different vehicle axle loads in terms of a standard, 18,000-pound single axle load.

Kentucky's guidelines for cost allocation were most recently validated in the 1996 study (3).

Primary sources of user revenue include fuel taxes, registration and license fees, usage taxes, road tolls, other motor carrier taxes, other federal taxes, and miscellaneous taxes and fees. The allocation of highway user revenue to the state-maintained highway system followed the guidelines of Table 4. Their attribution to the various user classes is summarized in Table 5. In a few instances, available data are sufficiently detailed to identify the link between a specific revenue total and a specific user class. For example, available tabulations indicate the fees collected specifically from automobile registrations. In other cases, the link between revenue and user class is less direct. For example, revenue from truck weight-distance taxes must be attributed to the three classes of trucks having registered (or declared) weights in excess of 59,999 pounds. Although in this instance estimated truck miles of travel for the three classes provided a direct basis for attribution, in other situations more arbitrary attribution rules were required.

Technical documentation for the analysis is included in Appendix A.

## **MODIFICATIONS TO 1996 PROCEDURES**

Highway-cost-allocation research, as a means for evaluating the equity of highway user taxation, was first reported in Kentucky in 1956 (4). From 1982 through 1996, seven additional studies were conducted by the Kentucky Transportation Cabinet and the Kentucky Transportation Center (formerly the Kentucky Transportation Research Program); six of which were eventually published (3, 5-9). Each study built on experience gained during prior studies, and the process was progressively streamlined and automated to permit analyses to be performed and evaluated within relatively short periods of time.

Only minor modifications were made to the 1996 procedures during this study. First, the 1996 construction costs were reported in fiscal years instead of calendar years. In order to attenuate year-to-year fluctuations, the STARS-based construction-cost matrix for the current study was based on the average expenditure pattern from CY 1994 through FY 1996 before being scaled to reflect the FY 1996 total. The data period is different for the last year of data because construction spending costs have been switched from the calendar to the fiscal year as of FY 1996/97. Because the fiscal costs represent the same amount of time as the calendar costs, combining the two calendar systems did not present a problem.

The second change in methodology involved the estimation of the distribution of registered truck weights in the traffic stream. The highway cost allocation study has traditionally used the four most recent years of the Kentucky State Police accident database as a representative sample of the truck population. In order to gain a more accurate representation of the population, five years of accident data were considered for the current study. In addition, the match of license plate numbers which contain codes to determine the registered weights with the axle configuration on the accident report form provided sufficient data without the use of the VIN number in combination with the AVIS file.

A third modification involved the elimination of an adjustment process previously used to force the estimated fuel consumption to correspond with fuel gallonage reported by the Revenue Cabinet through the Transportation Cabinet's Division of Transportation Planning. Estimated gallons is based on a calculation using vehicle miles traveled, fuel efficiency, and percent diesel trucks. By eliminating the adjustment process, the efficiency of tax collection estimates appear to be more reasonable for the heavy vehicle surtax and the carrier surtax. Revisions were made for the current year, as well as the previous years, to reflect elimination of the adjustment process.

## **DISTRIBUTION OF REGISTERED TRUCK WEIGHTS**

One of the most difficult aspects of the cost allocation process is to reconcile the gross-weight classification of trucks which serves as the basis for tax assessment with their axle-configuration classification which serves as the basis for travel counts and measurements. Past studies have concluded that the sample of Kentucky trucks involved in reportable traffic crashes provides a reasonable basis for developing the necessary registered-weight distributions as a function

of axle configuration (6,7). For each accident-involved truck, its registered weight can be determined directly by its license-plate coding, and its configuration (straight, single-trailer, or multiple-trailer) and number of axles are recorded on the accident report form.

Registered-weight distributions developed for the current study were based on accidents occurring during 1992-1996. This relatively long period was used in order to increase the sample size and, hence, the reliability of the estimates. As before, registered-weight distributions for straight trucks were based on Kentucky-licensed trucks with non-apportioned plates. Those for combination trucks were based on Kentucky-licensed trucks with apportioned plates. The resulting distributions are summarized on Table 6. As noted previously, the match of license plates with axle configurations provided a sufficient database and negated the need for matching the VIN numbers with the AVIS file.

## **ANALYSIS AND RESULTS**

FY 1997 revenues and costs, as extracted from the Cabinet's "Financial Report to Management..." (2), are itemized in Appendix B. Revenues associated with the state-maintained highway system experienced an annual increase of approximately 4.6 percent from FY 1995 to FY 1997. During the same period, allocatable costs increased at an annual rate of approximately 6.8 percent. Because state taxation practice did not change during this period, most of the fundamental growth in revenue can be attributed to increases in the level of travel activity. For example, one measure of activity, statewide vehicle miles of travel, grew at an annual rate of approximately 3.6 percent from CY 1994 to CY 1996.

With exception of buses, each of the major groups of highway users traveled more in CY 1996 than they did in CY 1994 (Table 7). The relative share of travel by light trucks, heavy trucks and pickups and vans increased from CY 1994 to CY 1996 while the relative share of travel by cars, buses, and medium trucks declined slightly (Table 7). The five-year trend of vehicle-miles traveled by each vehicle type on state-maintained roads is demonstrated graphically in Figure 2. Table 8 itemizes changes in the use and wear measures which are used in the cost allocation process. There were variations in some of the use and wear measures; specifically noted were increases in all categories for single-trailer trucks with six or more axles. In contrast, there were decreases for single-trailer five-axle trucks for PCE and ESAL miles.

## **ALLOCATION OF HIGHWAY COSTS**

The process of allocating highway costs and revenues, summarized earlier and detailed in Appendix A, yields extensive tables for both cost and revenue allocations. For the FY 1997 analysis, these tables are presented in Appendix C (cost) and Appendix D (revenue). Cost and revenue elements on which the analyses are based are identified in Appendix B. Appendix E presents summary information about travel on each segment of Kentucky's Interstate system. This information is an important part of the travel estimations which are also key to accurate analysis.

The cost responsibility among six major types of road users is summarized in Table 9. Cars bear by far the greatest responsibility but large trucks and pickups and vans also share critical portions of the load. Cost responsibility is a complex function not only of the sizes, weights, and amount of travel but also of the nature of highway expenditures (for example, relative expenditures on capital investments versus those on administration and maintenance). Table 10 tracks the trend in cost responsibility through time and examines impacts of relative changes in travel among the user types. A constant normalized ratio of cost to travel would signify that the percentage of cost responsibility for a specific road user class is a direct reflection of percentage of travel activity. The normalized ratios of cost to travel have remained relatively constant through time for cars and pickups and vans. For the three truck categories, there has been more variability in the ratios of cost to travel.

## ATTRIBUTION OF HIGHWAY REVENUE

The revenue attribution among the six major types of road users is summarized in Table 11. Cars contribute most to the revenue stream, followed by heavy trucks and then pickups and vans. Taken together these three groups of vehicles contribute more than 91 percent of the revenue dedicated to the state-maintained highway system. A detailed breakdown of Kentucky's tax rates and the revenue stream they generate is presented in Table 12. Although the revenue shares for the six classes of vehicles were relatively stable from FY 1989 through 1993, elimination of the weight-distance surcharge decreased the contributions of heavy trucks to the revenue stream in FY 1997 (Table 13). During FY 1997, there was also a decrease in the revenue contribution by cars; apparently partially attributed to the reduced percentage of cars in the travel stream. The decrease was offset largely by increased contributions by pickups and vans. These patterns reflect the continuing shift from cars to vans, pickups and utility vehicles by the driving public.

Combining the revenue estimates of Table 11 with the vehicle-mile estimates of Table 14 yields estimates of the revenue generated per vehicle mile of travel. Such estimates are particularly useful because they provide information that is readily comprehended. Table 15 shows, for example, that passenger cars contribute approximately 2.2¢ in revenue for every mile they travel. This represents approximately 4.3 percent of the 51.4 cents-per-mile cost to operate an intermediate-sized car in the 1996 model year (1). On a per mile basis, the largest trucks paid approximately five times more than cars, 10.2¢ per mile. Expressed another way, the intermediate-sized car, traveling 15,000 miles annually on Kentucky highways, contributes approximately \$330 in revenue to state highways. The large truck, when traveling 100,000 miles in Kentucky, contributes approximately \$10,200.

Table 15 indicates that the revenue per vehicle mile increased from FY 1993 through FY 1997 for all user classes excluding cars. This apparent increase is an artificial one which largely resulted from the removal in this study of approximately 900 miles of urban streets from the state-maintained highway base. The ratio of state-maintained-system revenue to statewide vehicle miles of travel shows that the apparent decline experienced from FY 1989 to FY 1993 (2.93, 2.82, and 2.74¢ per mile for FY 1989, FY 1991, and FY 1993, respectively) has been reversed by a significant increase to 3.13¢ per mile in FY 1995 and 3.19¢ per mile in 1997.

## EQUITY EVALUATION

The primary measure that has been used for expressing the equity of user taxation is the ratio of the percentage share of revenue contributed to the percentage share of cost responsibility. A ratio of one indicates equity. Revenue to cost ratios, summarized in Table 16, generally indicate a variable pattern for the period from FY 1991 through FY 1997. For cars and heavy trucks, there has been a general pattern of decreasing equity ratios for the period. For other vehicle types, there has been a general pattern of increasing equity ratios. The primary influence during this period was probably the elimination of the weight-distance surtax which dropped the equity ratio for heavy trucks from 0.99 in 1993 to 0.91 in 1995 and 1997. The continuing decrease in the equity ratio for cars appears to be related to several factors. While there has been a steady trend in cost responsibility, there has been a greater decrease in revenue generated by cars from 1991 through 1997. The revenue shortfall for cars increased from FY 1995 to FY 1997 while the shortfall remained the same for heavy trucks during the same time period.

The equity ratio for light trucks appears to be out of balance. Because they constitute such a small fraction of the travel stream, however, the revenue to cost ratio may be of questionable reliability. Equity ratios for pickups and vans, cars and heavy trucks, though perhaps not seriously out of balance, warrant some concern. All are heavy contributors to revenue generation and to highway use, and their equity ratios have generally followed consistent trends since FY 1989 (Table 16). Pickups and vans now contribute approximately 19 percent more than their cost responsibility, and heavy trucks fall short by approximately 9 percent. Cars also contribute 6 percent less than their cost responsibility.

## DETAILED ANALYSIS BY TRUCK TYPE

Although taxation practices generally group trucks into a few, selected categories, analysis of individual truck types offers the potential for better understanding the cost allocation and revenue attribution processes and for uncovering specific inequities in tax policy.

Figures 3 and 4 summarize the cost data. In general, as trucks increase in gross weight to about 38,000 pounds, an increasing portion of their cost responsibility is due to capital needs (Figure 3). Beyond 38,000 pounds, the change does not seem to be particularly significant or meaningful. The 73,280-pound truck is somewhat of an outlier, though, as convincingly demonstrated by the cost-per-vehicle-mile estimates of Figure 4. The cost responsibility of 73,280-pound trucks is relatively large because this category includes a particularly large percentage of straight trucks. With fewer axles and larger loads per axle, these trucks impose significantly larger pavement costs and, hence, affect both construction costs and total costs as well. As demonstrated by Figure 4, although truck cost responsibility generally increases with gross weight, the trend is not a smooth one. Among the host of influential factors are favored tax status (for example, for farm trucks registered at 38,000 pounds), differences among the vehicle configurations and the numbers of axles, differences in the types of roads on which specific types of trucks concentrate, etc.

Revenue analyses, summarized in Figures 5 and 6, are of potentially greater interest and significance than cost analyses. First, revenue is dominated by fuel and usage taxes: carrier fees (particularly the weight-distance tax and the heavy vehicle fuels surtax) are also quite important for heavy trucks. Second, the most readily apparent anomaly is the inordinately large contribution of usage taxes for 38,000-pound trucks and, to a somewhat lesser extent, 10,000-pound trucks. The relatively large usage tax means that there are a relatively large number of trucks in these categories, and the large proportion of usage revenues reflects both the large number of trucks and a relatively low amount of travel (annual miles per truck). The 38,000-pound category is of particular interest because it contains all 38,000-pound and lesser weight farm trucks which are permitted to register at 38,000 pounds with minimum registration fees.

Revenue-to-cost ratios generally diminish with increasing truck weight up to about 38,000 pounds after which they remain relatively constant (Figure 7). Smaller trucks are more likely to contribute larger revenue surpluses, and medium and large trucks are deficit contributors.

## **EFFICIENCY OF TAX COLLECTION**

Highway cost allocation studies assimilate a great deal of information that is useful for a variety of purposes other than cost allocation. One such past use has been to evaluate the efficiency with which certain tax revenue is collected. Kentucky taxes which can be readily examined include the weight-distance tax and the various fuel taxes.

Estimating weight-distance-tax revenue is simply a matter of applying a 2.85¢ per mile tax to the estimated vehicle miles of travel by heavy trucks, those grossing more than 59,999 pounds. Table 17 compares the current estimate with estimates documented by the four prior studies. The results indicate that the efficiency of collection of the weight-distance tax increased slightly through FY 1993 before increasing to 80.6 percent in FY 1995 and 81.6 percent in FY 1997. There was some question whether this increase was real or whether it was the result of estimation errors. However, recent trends in weight-distance tax revenue (Figure 8), statewide and state-maintained vehicle miles of travel by heavy trucks (Figure 9), statewide and state-maintained vehicle miles of travel by all vehicles (Figure 10), and statewide and state-maintained percentage of heavy trucks in the traffic stream (Figure 11) appear reasonable.

Estimates of fuel-tax revenue are more complicated and require the estimation of gallonages of the various types of fuel. Such estimates, summarized in Table 18, are similar to reported gallonages. For all types of fuels combined, the gallonage reported by the Revenue Cabinet was within 3.3 percent of the study estimate in FY 1997. Accuracy of this magnitude typically increases confidence in predictions of fuel tax revenue. However, extenuating circumstances during the last two study years have influenced such predictions as summarized in Table 19. As shown, the repeal of the heavy vehicle surtax and the subsequent revenue collection during only one fiscal quarter has dramatically decreased collection efficiency of this tax to 20.0 percent. Large decreases in collection efficiency are also noted for the carrier surtax which dropped from 77.6 percent in FY 1995 to 68.8 percent in FY 1997. The decrease in revenue reported for the carrier surtax is apparently related to

Kentucky becoming part of the International Fuel Tax Agreement which has resulted in a delay in the transfer of tax refunds to the participating states. The difference was compounded by the increased travel by some classes of heavy trucks and the decrease in reported revenue for the same classes. Collection of normal fuel-taxes follow the general trend established over the past few years. It should be noted that the adjustment process previously used to force the estimated fuel consumption correspond with fuel gallonage reported by the Revenue Cabinet through the Transportation Cabinet's Division of Transportation Planning was discontinued for the current report. For example, the reported gallons of special fuels in 1997 was 704,817,000 as compared to 623,143,000 gallons estimated from the process using vehicle miles traveled, fuel efficiency, and percent diesel trucks. The difference was more than 13 percent which resulted in a greater difference between the estimated revenue and the reported revenue. By eliminating the adjustment process, the efficiency of tax collection estimates appear to be more reasonable for the heavy vehicle surtax and the carrier surtax. Table 19 was revised for the current year, as well as the previous years to reflect the elimination of the adjustment process.

## SUMMARY AND FINDINGS

The current highway cost allocation study is the eighth of a recent Kentucky series begun in 1982. Experience gained with each study has resulted in subsequent refinements that have enlarged the data base, enhanced the accuracy, and simplified the study process. One of the long-term aims--to develop an easy-to-use process for continuously monitoring effects of changes in traffic patterns, in finance and tax policy, and in highway expenditures--has largely been realized.

Passenger automobiles remain the largest single revenue source, contributing about 43 percent of the total user revenue, but they fail to reach their equitable cost assignment under current tax practice by about 6 percent. Pickups and light trucks continue to contribute more in revenue than their cost responsibility, by 19 percent and 39 percent, respectively. Removal of the 1.15¢ per mile weight-distance surcharge has reduced the revenue attributed to heavy trucks, and heavy trucks now contribute only about 91 percent of their cost responsibility. Four years ago, heavy trucks failed to meet their cost assignment by 1 percent. Medium trucks exceeded their cost responsibility by about 8 percent in FY 1997.

In FY 1997, approximately 2.2¢ per mile of operation were collected from passenger cars for the purpose of upgrading and maintaining Kentucky's state highways. Collections generally increase for progressively larger vehicles: the largest trucks contribute approximately 10.2¢ per mile. Although available data on vehicle operating expenses are limited, these road user taxes appear to comprise a relatively small portion of operating expenses, perhaps in the range of 5 to 10 percent. At current levels of taxation, the largest trucks traveling about 100,000 miles in Kentucky each year would make annual contributions of \$10,200. At 15,000 miles a year, a car would contribute about \$330.

In regard to tax collection efficiency, this study also sought to determine how completely current taxes are being collected. Although this is a difficult task, there appears to be little

opportunity for most highway users to avoid full payment of those taxes that contribute most to the revenue totals, in particular, normal fuel taxes and vehicle usage taxes. Taxes assessed on the basis of user-reported information, in the form of quarterly tax reports required of motor carriers, exhibited variable results over the most recent analysis period. The 20.0 percent efficiency of collection for the heavy vehicle surtax resulted from collection during only one quarter due to repeal of this tax effective July 15, 1996. A full explanation of the 68.8 percent collection efficiency for the carrier surtax is not available other than the increased travel associated with some classes of heavy trucks and a decrease in reported revenue for the same classes. The decrease in revenue reported for the carrier surtax is apparently related to Kentucky becoming part of the International Fuel Tax Agreement which has resulted in a delay in the transfer of tax refunds to the participating states. It should also be noted that the estimated revenue for all fuel taxes is derived from estimates of vehicle miles of travel, and therefore subject to the errors of collection and projections from short-term counts to yearly averages.



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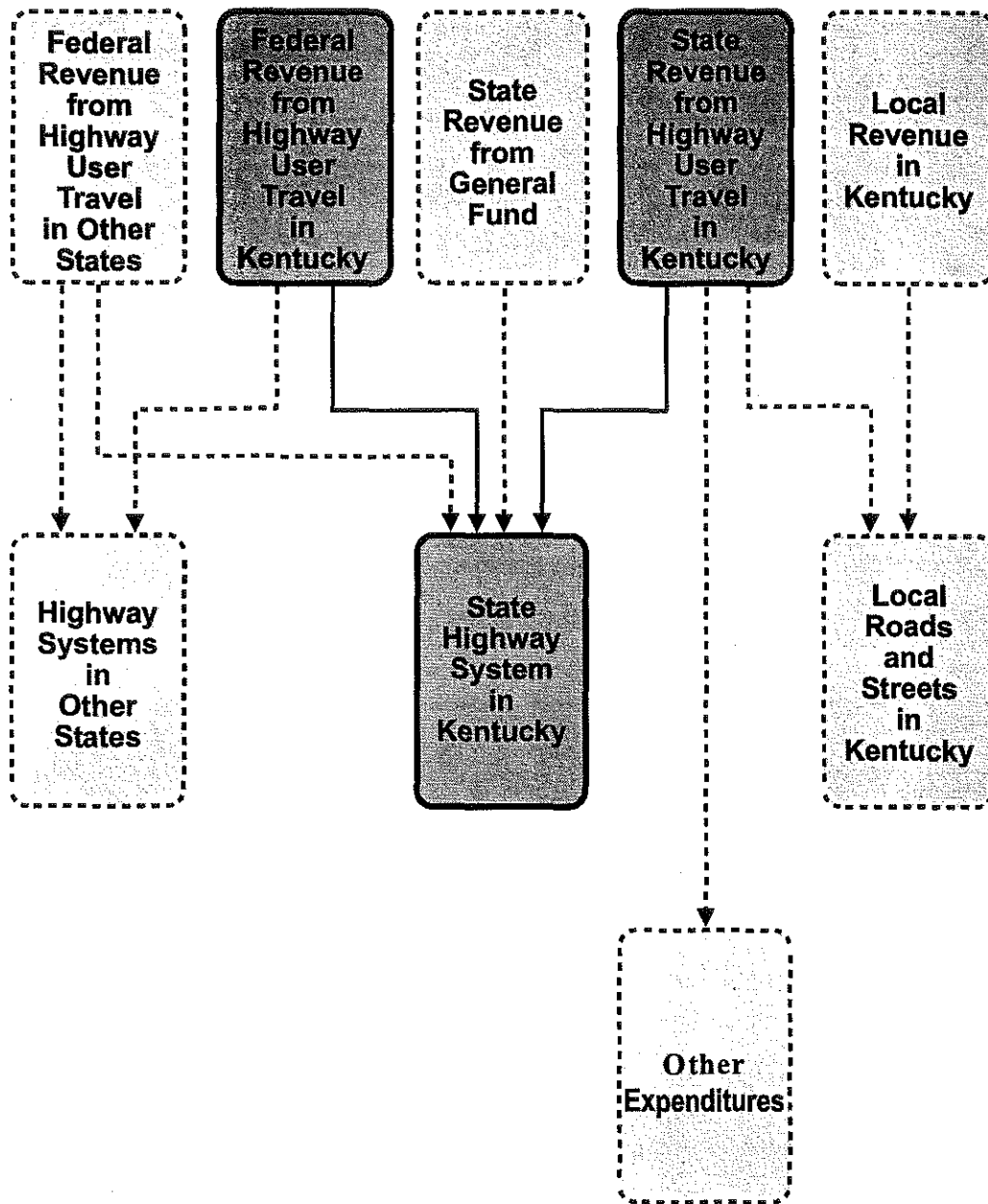


FIGURE 1. Revenue Sources for Kentucky's Highways Highlighting Road-User Contributions to the State-Maintained System

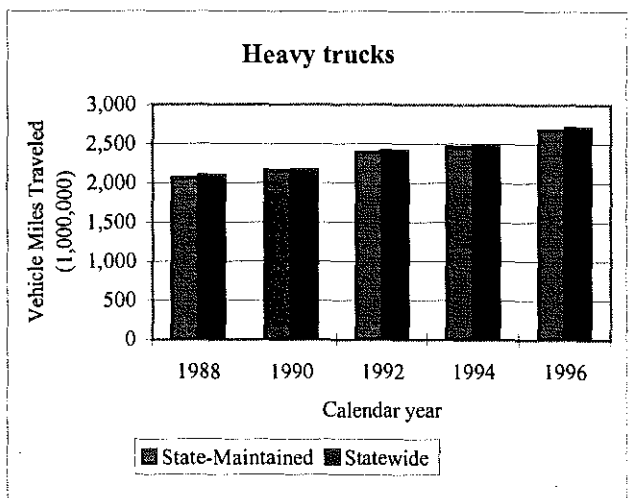
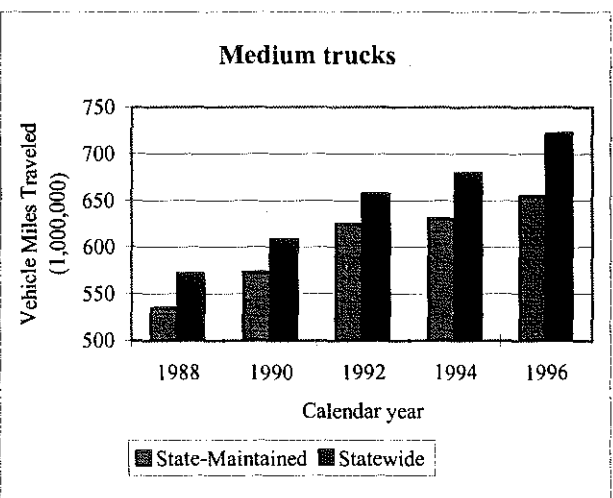
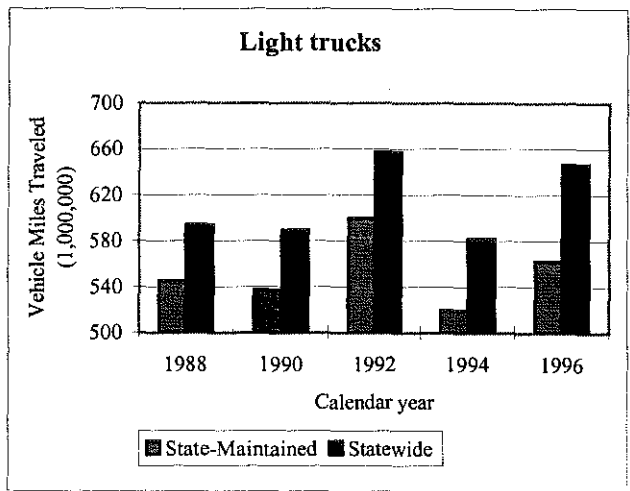
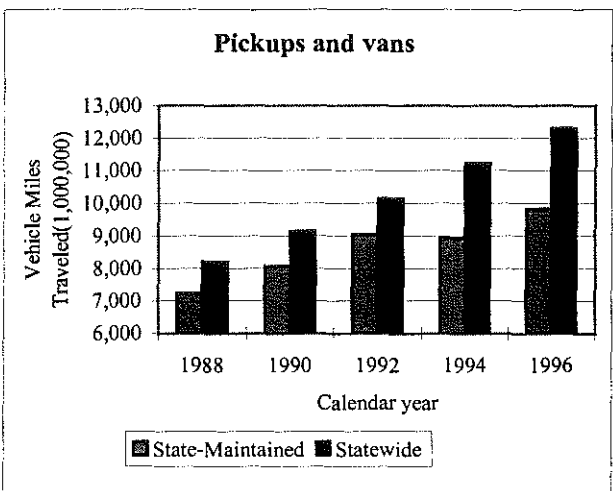
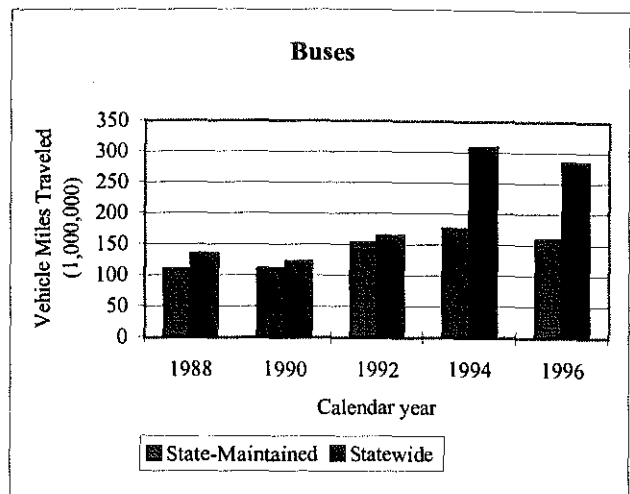
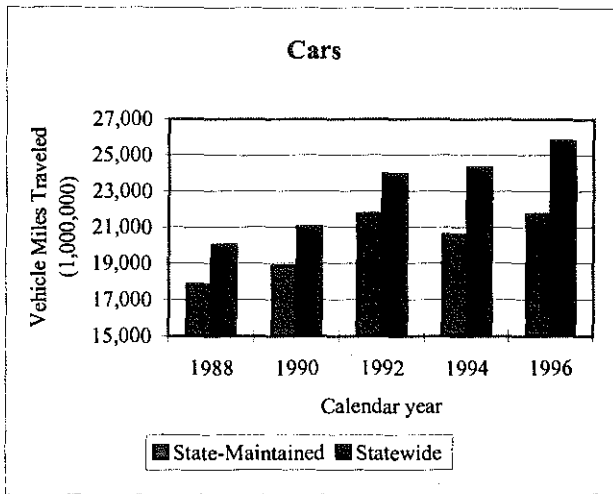


FIGURE 2. Trends in Travel by Vehicle Type

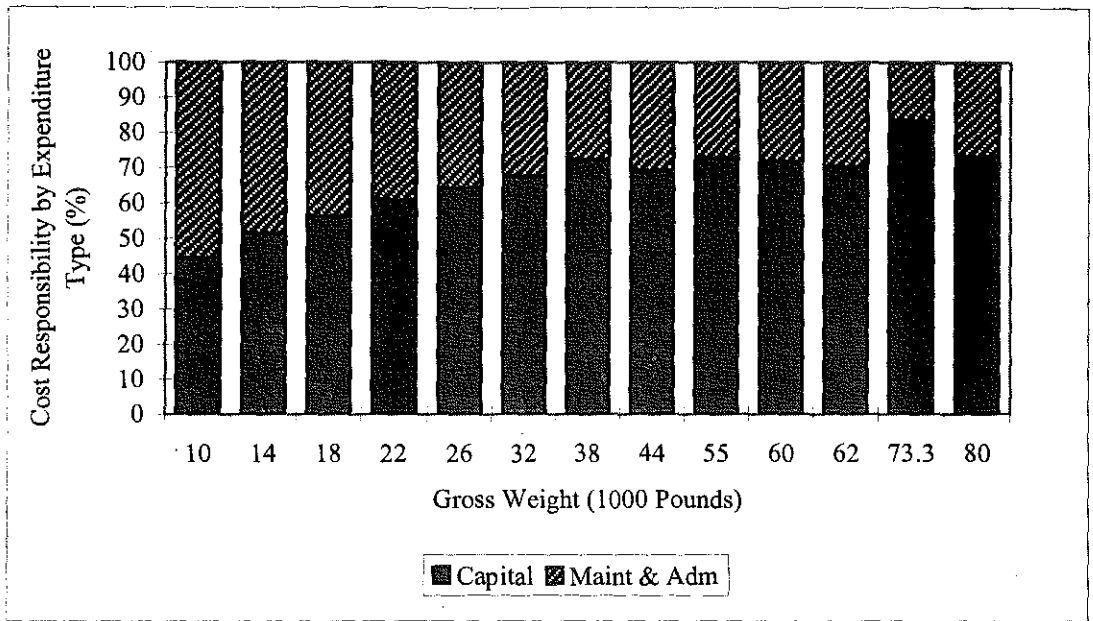


FIGURE 3. Cost Component Percentages by Truck Weight

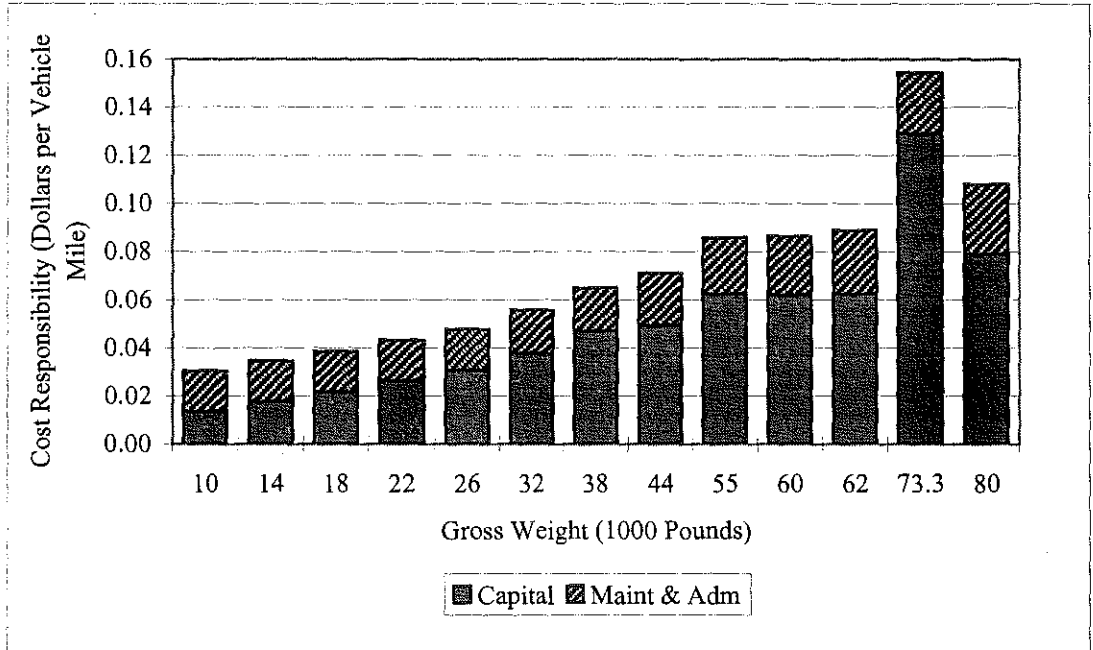


FIGURE 4. Per-Vehicle-Mile Cost Components by Truck Weight

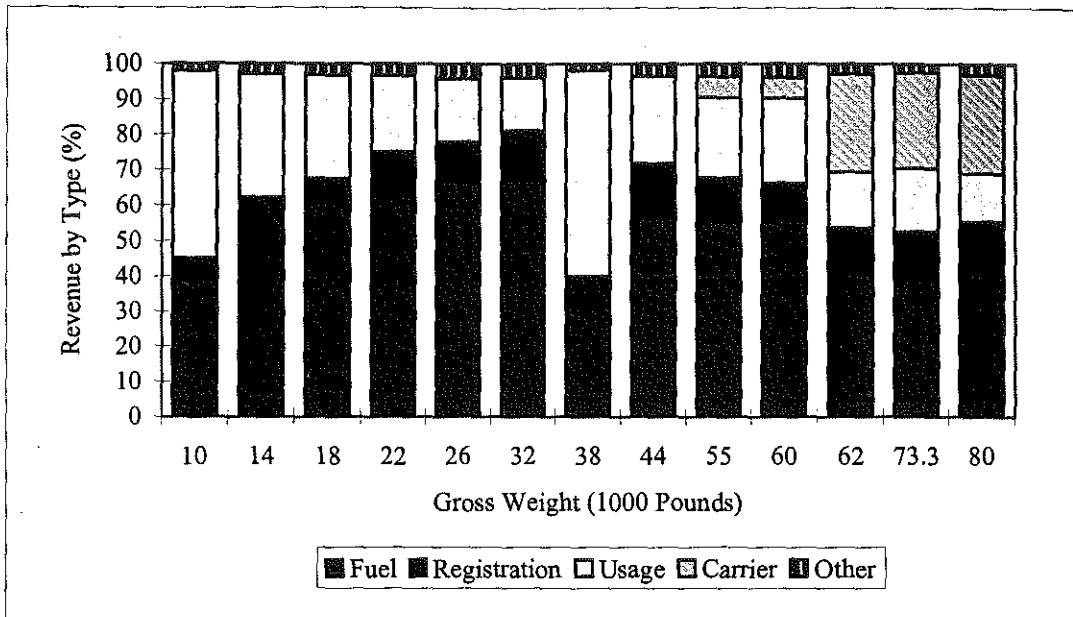


FIGURE 5. Revenue Component Percentages by Truck Weight

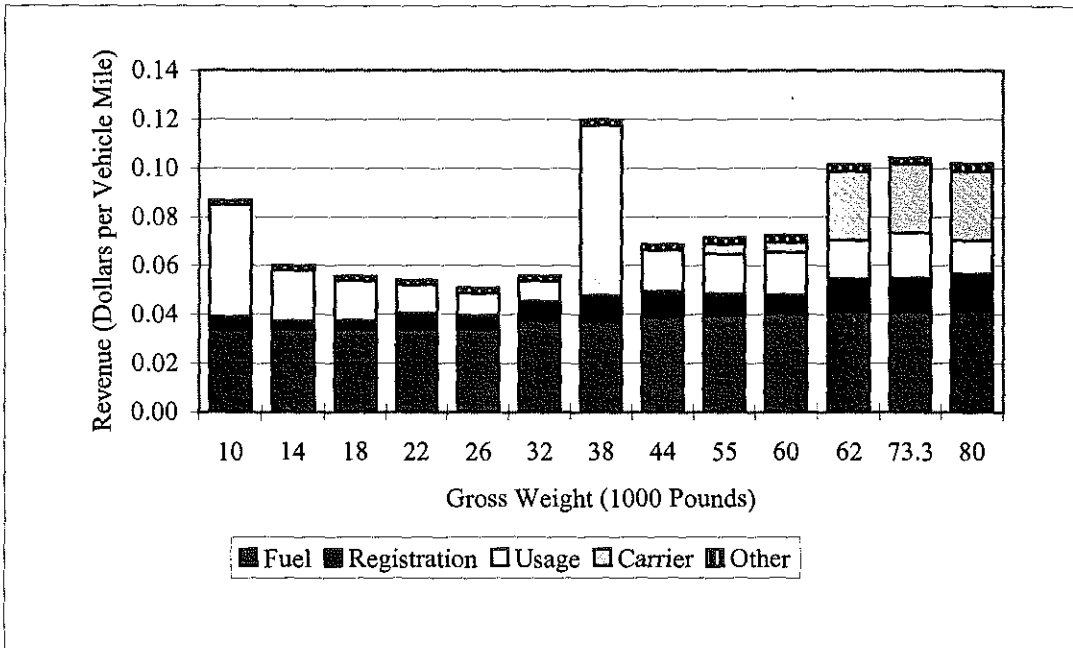


FIGURE 6. Per-Vehicle-Mile Revenue Components by Truck Weight

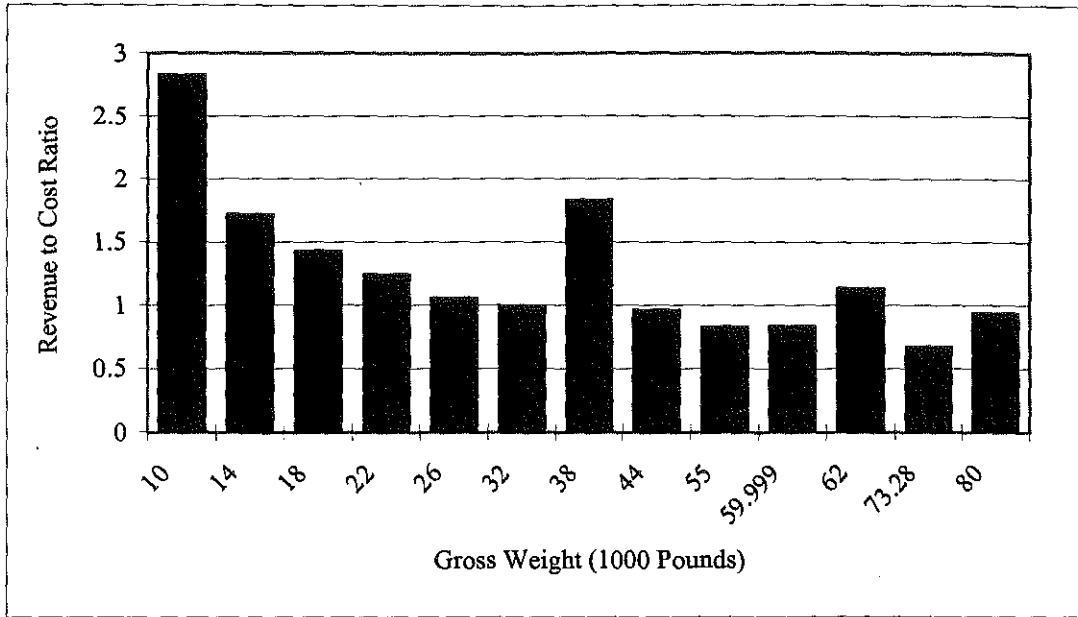


FIGURE 7. Revenue-to-Cost Ratio by Truck Weight

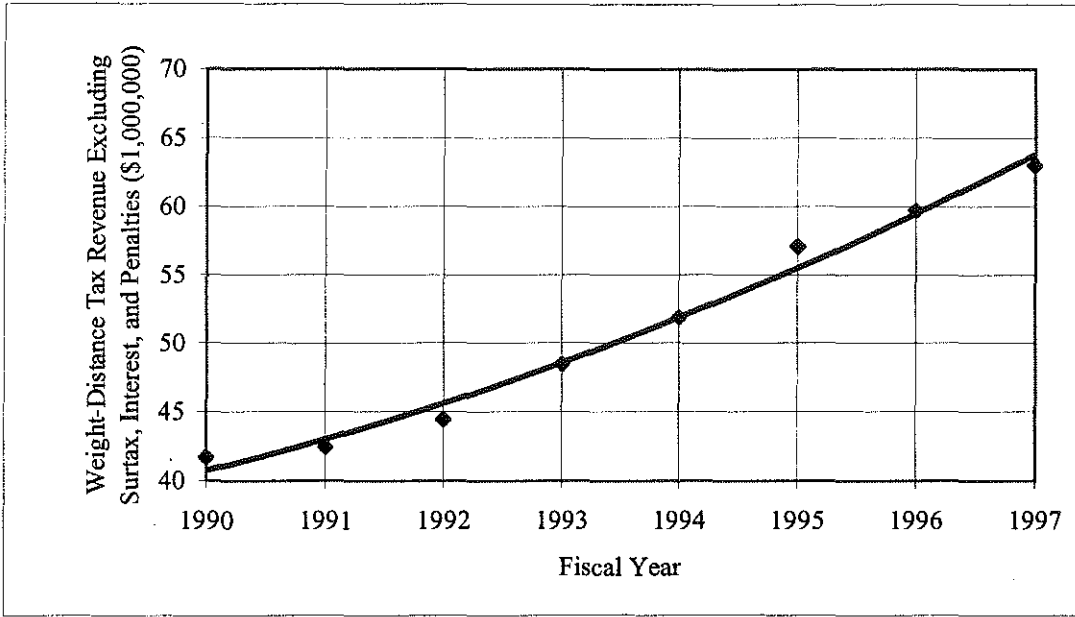


FIGURE 8. Trend in Weight-Distance Tax Revenue

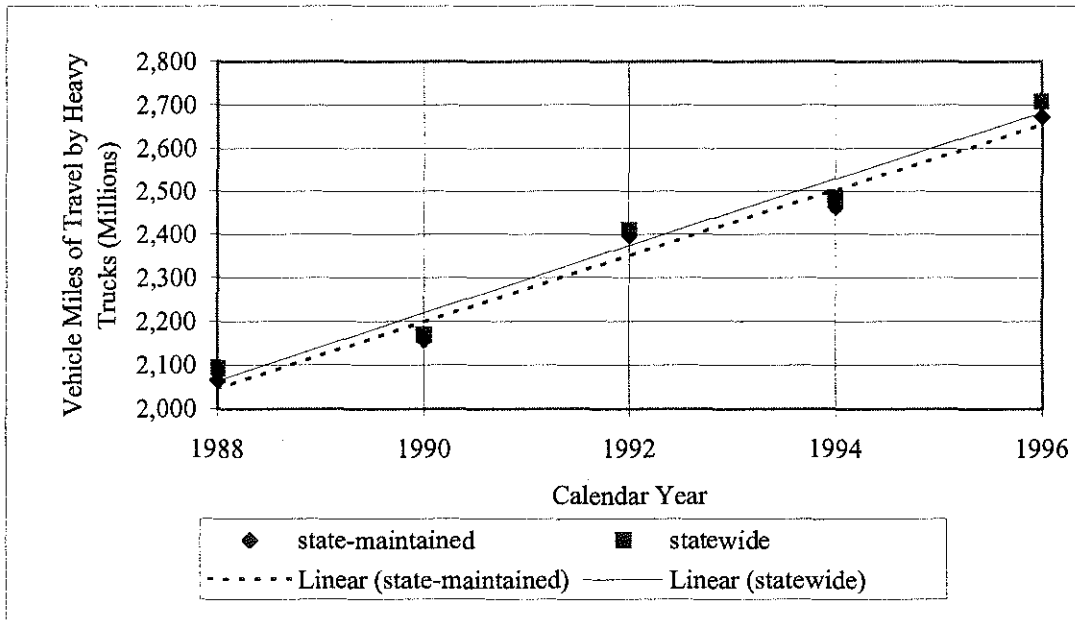


FIGURE 9. Trend in Travel by Heavy Trucks



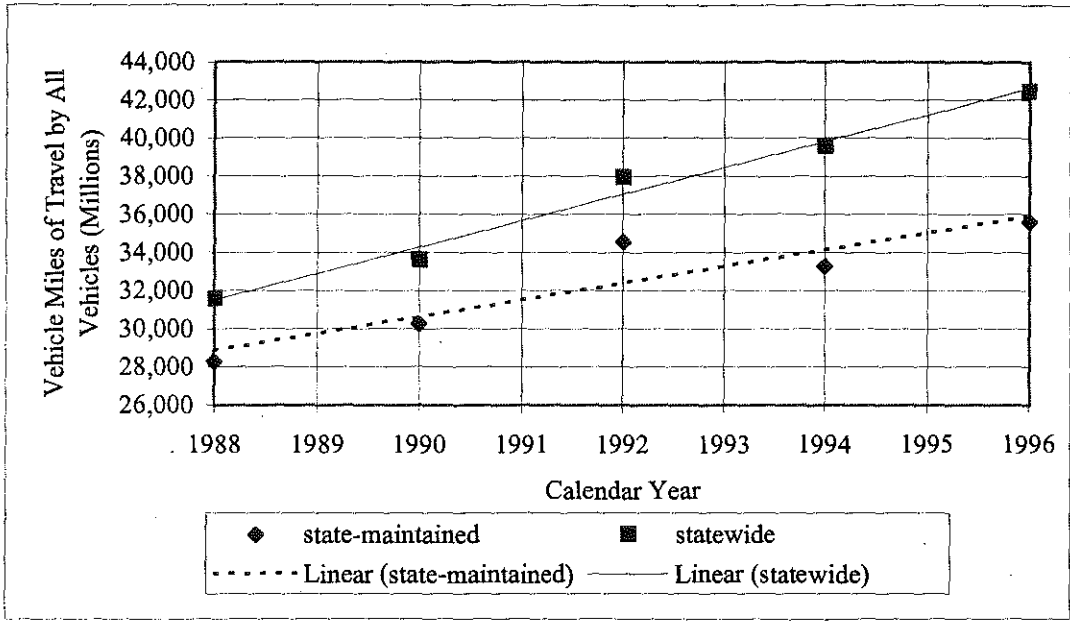


FIGURE 10. Trend in Travel by All Vehicles

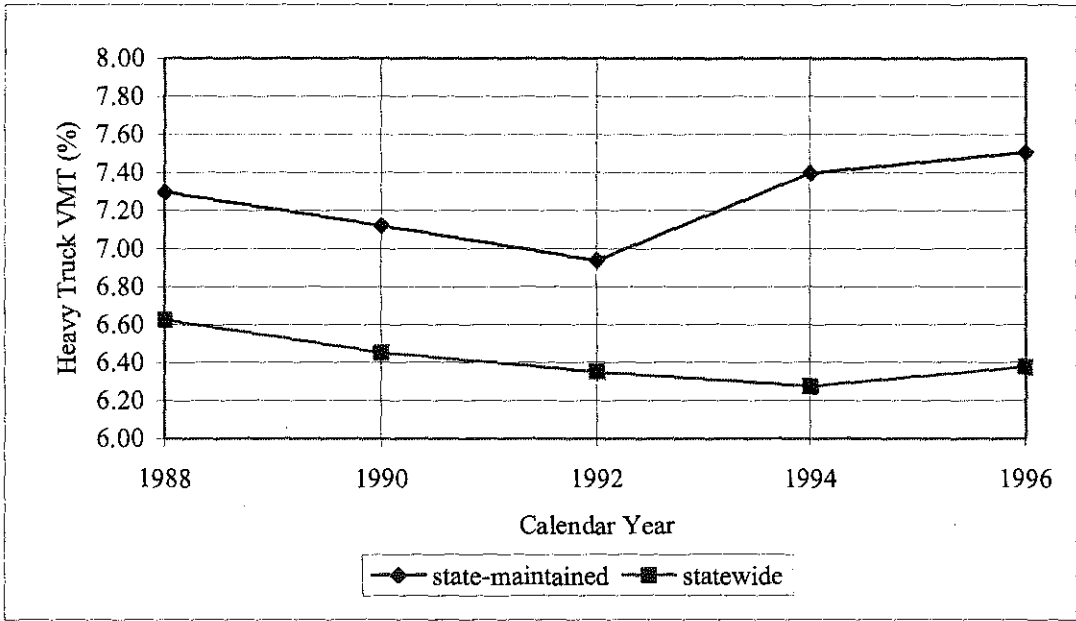


FIGURE 11. Trend in Percentage of Heavy-Truck Travel



TABLE 1. Vehicle Types for Cost and Revenue Allocation

Motorcycles
Cars
Buses
Trucks (registered or declared weight class, pounds)
6,000
10,000
14,000
18,000
22,000
26,000
32,000
38,000
44,000
55,000
59,999
62,000
73,280
80,000

TABLE 2. Guidelines for the Allocation of Total Costs to State-Maintained Highway System

Element	Method of allocation
Capital	
...planning & design	
...right of way	
...utility relocation	Distribution of capital costs reflects expenditures on state-maintained system only, and costs are adjusted to meet the annual level of capital expenditures
...grade, drain, & surfacing	
...resurfacing	
...bridges	
...miscellaneous	
M&O	
...roads	
...structures	
...traffic	
Administration	All other costs are limited to expenditures from Road Fund
Enforcement	
...motor carrier	
...other	
Miscellaneous	

TABLE 3. Guidelines for the Allocation of State-Maintained System Costs to Vehicle Classes

Element	Vehicle class	Basis (travel on state-maintained system)
Capital		
...planning & design	All	Veh miles
...right of way	All	Veh miles
...utility relocation	All	Veh miles
...grade, drain, & surfacing	All	15% veh miles, 55% PCE miles, 30% ESAL miles
...resurfacing	All	33% veh miles, 67% ESAL miles
...bridges	All	PCE miles
...miscellaneous	All	Veh miles
M&O		
...roads	20% to trucks (6 or more tires), 80% to all	Axle miles
...structures	All	PCE miles
...traffic	All	Veh miles
Administration	All	Veh miles
Enforcement		
...motor carrier	Trucks (6 or more tires)	Veh miles
...other	All	Veh miles
Miscellaneous	All	Axle miles

TABLE 4. Guidelines for the Allocation of Total Revenue to State-Maintained Highway System

Element	Method of allocation
Ad valorem taxes	None
Fuel tax	
...Ky heavy veh surtax	100%
...Ky carrier surtax	74%
...Ky normal and normal use	74%
...federal	100%
Veh registration & license	
...cars	100%
...buses	100%
...motorcycles	100%
...Ky trucks	70%
...apportioned trucks	70%
...truck ID cards	100%
...truck permits	100%
...other	100%
Miscellaneous	100%
Operator's license	Approximately 70%
Commercial driver's license	100%
Usage tax	
...Ky buses	100%
...Ky other veh	100%
...federal trucks & trailers	100%
Road tolls	100%
Other motor carrier taxes	
...Ky weight distance	100%
...Ky extended weight	60%
...federal use	100%
Other federal taxes	100%

TABLE 5. Guidelines for the Allocation of State-Maintained System Revenue to Vehicle Classes

Element	Vehicle class	Basis (travel on state-maintained system)
Fuel tax		
...Ky heavy veh surtax	Trucks over 59,999 lbs	Revenue estimates from veh mi, rates of fuel consumption, & tax rates
...Ky carrier surtax	Trucks over 26,000 lbs	See above
...Ky normal and normal use	All	See above
...federal	All	See above
Veh registration & license		
...cars	Cars	100%
...buses	Buses	100%
...motorcycles	Motorcycles	100%
...Ky trucks	Trucks	Revenue estimates from number of registered trucks & registration fees (with adjustments for farm, exempt, and 6,000-lb trucks)
...apportioned trucks	Trucks	Number of ID cards
...truck ID cards	Trucks	Number of ID cards
...truck permits	Trucks	Number of ID cards
...other	All	Veh miles
Miscellaneous	All	Veh miles
Operator's license	All	Veh miles
Commercial driver's license	Trucks over 22,000 lbs	Veh miles
Usage tax		
...Ky buses	Buses	100%
...Ky other veh	All excluding buses	As reported (R5421)
...federal trucks & trailers	Trucks over 33,000 lbs	Veh miles
Road tolls	All	Toll collection receipts
Other motor carrier taxes		
...Ky weight distance	Trucks over 59,999 lbs	Veh miles
...Ky extended weight	80,000-lb trucks	100%
...federal use	Trucks over 54,999	Veh miles
Other federal taxes	All	Veh miles

TABLE 6. Frequency Distribution of Registered Gross Weights

Gross weight (lbs)	Axle configuration									
	Straight trucks				Single trailer			Multiple trailers		
	2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle	7 or more axles
6,000	100.00									
10,000		8.26	0.24	0.76		0.09				
14,000		9.16	0.31	1.02	0.17					
18,000		11.43	1.02	0.25	0.17					
22,000		6.85	0.86	0.25						
26,000		26.30	2.83	1.02	1.36					
32,000		12.80	2.28	2.29	3.40	0.18				
38,000		14.45	5.65	0.76	2.21	0.14	0.47			
44,000		2.55	13.50	2.04	5.44	0.36	0.71	5.00		
55,000		4.20	29.04	10.43	23.98	2.41	0.94			
62,000		0.43	3.69	3.82	9.18	1.32	0.24			
73,280		1.23	13.34	55.98	6.80	1.82	0.71	35.00		
80,000		2.36	27.24	21.37	47.28	93.69	96.93	60.00	100.00	100.00
Sample Size		2,118	1,274	393	588	2,202	424	20	0	1



TABLE 7. Changes in Relative Travel Activity from CY 1994 to CY 1996

Vehicle type <sup>a</sup>	Statewide vehicle miles of travel (1,000)			Percentage within travel stream		
	CY 1994	CY 1996	Annual percent change	CY 1994	CY 1996	Annual percent change
Cars	24,310,399	25,806,143	3.1	61.392	60.762	-0.5
Buses	307,952	283,572	-4.0	0.778	0.668	-7.1
Pickups and vans	11,233,777	12,303,657	4.8	28.369	28.969	1.1
Light trucks	581,950	647,125	6.0	1.470	1.524	1.8
Medium trucks	679,233	721,837	3.1	1.715	1.699	-0.4
Heavy trucks	2,485,175	2,708,698	4.5	6.276	6.378	0.8
Total	39,598,486	42,471,035	3.6	100.000	100.000	---

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.

TABLE 8. Percent of Contribution by Vehicle Type to Various Use and Wear Measures, State-Maintained System

Vehicle type	Vehicle miles			Axle miles			PCE miles			ESAL miles		
	1994	1996	1998	1994	1996	1998	1994	1996	1998	1994	1996	1998
Motorcycles	0.26	0.22	0.21	0.24	0.20	0.19	0.11	0.09	0.08	0.00	0.00	0.00
Cars	62.66	61.57	60.79	56.49	55.24	54.45	50.91	49.80	49.13	1.49	1.51	1.52
Buses	0.44	0.53	0.45	0.40	0.47	0.40	0.54	1.04	0.90	2.24	2.25	1.86
Straight trucks												
2 axles, 4 tires	26.15	26.83	27.63	23.57	24.07	24.74	21.24	21.70	22.33	1.24	1.32	1.38
2 axles, 6 tires	2.50	2.51	2.44	2.25	2.25	2.18	3.57	3.64	3.53	7.22	6.12	6.05
3 axles	0.76	0.76	0.85	1.03	1.03	1.15	1.77	1.84	2.13	6.25	5.13	5.53
4 or more axles	0.18	0.16	0.14	0.33	0.29	0.26	0.49	0.43	0.37	5.36	4.78	4.83
Single-trailer trucks												
4 or less axles	0.75	0.81	0.78	1.35	1.46	1.40	1.93	2.10	2.04	6.52	6.14	4.61
5 axles	5.71	5.95	5.96	12.87	13.35	13.34	17.57	17.30	17.11	51.92	53.42	51.31
6 or more axles	0.33	0.35	0.42	0.89	0.95	1.13	1.15	1.26	1.48	14.14	14.89	18.58
Multiple-trailer trucks												
5 or more axles	0.21	0.25	0.28	0.48	0.56	0.63	0.60	0.68	0.76	2.77	3.52	3.47
6 axles	0.03	0.03	0.03	0.08	0.09	0.09	0.09	0.08	0.10	0.61	0.51	0.40
7 or more axles	0.01	0.02	0.01	0.04	0.05	0.05	0.03	0.04	0.04	0.24	0.40	0.47
Subtotal, combinations	7.04	7.42	7.48	15.71	16.46	16.64	21.37	21.45	21.53	76.20	78.88	78.84
Subtotal, trucks	36.63	37.68	38.54	42.89	44.10	44.97	48.44	49.07	49.89	96.27	96.23	96.63
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 9. Summary Distribution of Annual Cost Responsibility

Vehicle type <sup>a</sup>	Annual capital cost (\$1000)	Annual maintenance/ administrative cost (\$1000)	Total annual cost responsibility	
			Thousand dollars	Percent
Cars	325,040	191,333	516,373	45.739
Buses	10,261	1,444	11,705	1.037
Pickups and vans	147,225	86,649	233,874	20.716
Light trucks	13,761	9,554	23,315	2.065
Medium trucks	34,041	13,669	47,709	4.226
Heavy trucks	219,497	76,494	295,991	26.218
Total	749,825	379,142	1,128,967	100.000

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.

TABLE 10. Trend in Cost Responsibility

Vehicle type <sup>a</sup>	Year of report					
	1988	1990	1992	1994	1996	1998
Percent cost responsibility						
Cars	46.74	45.69	44.16	45.22	45.93	45.74
Buses	1.45	1.11	1.34	1.29	1.14	1.04
Pickups & vans	20.75	20.23	20.40	19.80	19.99	20.72
Light trucks	3.17	3.04	2.53	2.44	1.95	2.07
Medium trucks	3.10	6.76	6.93	4.97	4.26	4.23
Heavy trucks	24.79	23.17	24.64	26.28	26.73	26.22
Percent state-maintained system travel (VMT)						
Cars	63.73	62.93	62.22	62.92	61.79	61.00
Buses	0.40	0.38	0.37	0.44	0.53	0.45
Pickups & vans	25.68	25.59	26.63	26.15	26.83	27.63
Light trucks	2.63	1.91	1.77	1.73	1.56	1.58
Medium trucks	1.26	1.82	1.89	1.80	1.89	1.84
Heavy trucks	6.30	7.38	7.12	6.94	7.40	7.51
Normalized ratio of cost to travel						
Cars	0.73	0.73	0.71	0.72	0.74	0.74
Buses	3.63	2.92	3.62	2.93	2.16	2.31
Pickups & vans	0.81	0.79	0.77	0.76	0.74	0.75
Light trucks	1.21	1.59	1.43	1.41	1.25	1.31
Medium trucks	2.46	3.71	3.67	2.76	2.25	2.30
Heavy trucks	3.93	3.14	3.46	3.79	3.61	3.49

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.

TABLE 11. Summary Distribution of Annual Revenue Generated, State-Maintained System (FY 1997)

Vehicle type <sup>a</sup>	Annual fuel tax revenue (\$1000)	Annual usage tax revenue (\$1000)	Other annual revenue (\$1000)	Total annual revenue	
				Thousand dollars	Percent
Cars	214,558	208,797	66,112	489,567	43.033
Buses	8,850	55	322	9,228	0.811
Pickups & vans	151,320	103,535	26,765	281,620	24.755
Light trucks	19,003	9,758	3,941	32,702	2.875
Medium trucks	25,263	17,930	8,721	51,913	4.563
Heavy trucks	110,836	37,966	123,818	272,620	24.963
Total	529,932	378,040	229,678	1,137,650	100.000

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.

TABLE 12. FY 1997 Tax Rates and Estimated Revenue Supporting State-Maintained Highway System (\$1000)

Source	Rate	Notes	Passenger Vehicles & Buses	Pickups & Vans	Light Trucks (10,000- 26,000)	Medium Trucks (32,000- 59,999)	Heavy Trucks (62,000- 80,000)	Total	%
<b>Fuel Taxes</b>									
Kentucky, heavy veh. surtax	2.0¢ per gal	59,999 lbs & less exempt					2,008	2,008	0.177
Kentucky, carrier surtax	2.2¢ per gal gasoline, 5.2¢ per gal diesel	Totals excl. 26% to local govt; all 2-axle and all 26,000 lbs. & less exempt				2,488	11,951	14,439	1.269
Kentucky, normal & use	15.0¢ per gal gasoline, 12.0¢ per gal diesel	Totals excl. 26% to local govt; rates exclude 1.4¢ for environmental assurance	132,484	90,571	9,628	10,578	41,257	284,519	25.009
Federal	10.0¢ per gal gasoline, 16.0¢ per gal diesel, 4.0¢ per gal gasohol	Rates excl. 0.1¢ for LUSTs, 6.8¢ for debt, 1.5¢ for transit & 0.6¢ unspecified for gasohol; totals excl. amounts not returned to Kentucky	91,024	60,749	9,375	12,197	55,619	228,966	20.126
<b>Vehicle Reg. &amp; License Fees</b>									
Cars	\$12.00 per vehicle per year		24,315					24,315	2.137
Buses	\$12.00 per vehicle per year		31					31	0.003
Motorcycles	\$9.50 per vehicle per year		499					499	0.044
Trucks									
Kentucky	\$24.50-\$1,260.50 per veh per yr	Totals exclude 30% to local govt		7,169	2,556	4,154	4,969	18,848	1.657
Apportioned	Based on fraction of travel in KY	Totals exclude 30% to local govt		44	121	1,119	22,331	23,614	2.076
Vehicle ID Cards				11	29	271	5,403	5,714	0.502
Permits				13	35	327	6,533	6,908	0.607
Other			5,134	2,308	132	154	627	8,355	0.734
Miscellaneous		Totals exclude about 30% to local govt	22,808	10,254	587	683	2,786	37,117	3.263
Operator's License Fees	\$8 per driver every 4 years, \$6 instructional permit		3,858	1,734	99	115	471	6,278	0.552
Commercial Driver's License	\$40 new, \$35 renewal, \$20 bus per year				76	205	838	1,119	0.098
<b>Usage Taxes</b>									
Kentucky, buses	6% of retail price		55					55	0.005
Kentucky, other vehicles	6% of retail value	Specified retail value differs by vehicle type	208,797	103,535	9,758	11,970	7,476	341,535	30.021
Federal, trucks & trailers	12% of retail price	33,000 lbs & less exempt				5,960	30,490	36,450	3.204
Road Tolls			5,381	3,251	193	401	3,428	12,654	1.112
<b>Other motor carrier taxes</b>									
Kentucky, weight distance	2.85¢ per vehicle mile	Total includes \$0.15 million from 1.15¢ surtax (now expired)					64,171	64,171	5.641
Kentucky, ext.-weight permits	\$160-\$360 per vehicle per year	Totals exclude 40% to local govt					511	511	0.045
Federal, use	\$100-\$500 per vehicle per year					1,160	11,211	12,371	1.087
Other federal taxes	Tires		4,409	1,982	113	132	539	7,175	0.631
<b>Total</b>			<b>489,567</b>	<b>281,620</b>	<b>32,702</b>	<b>51,913</b>	<b>272,620</b>	<b>1,137,650</b>	<b>100</b>
<b>Percent</b>			<b>43.844</b>	<b>24.755</b>	<b>2.875</b>	<b>4.563</b>	<b>23.963</b>	<b>100.000</b>	

Notes: Table excludes ad valorem taxes assessed on all vehicles as well as corporate and employee taxes. Registration fee for farm trucks is \$11.50 for 38,000 lbs or less and 40% of

TABLE 13. Trend in Revenue Attribution (percent)

Vehicle type <sup>a</sup>	Fiscal year				
	1989	1991	1993	1995	1997
Cars	44.76	44.69	44.15	44.17	43.03
Buses	0.37	0.28	0.53	0.90	0.81
Pickups and vans	21.44	22.49	22.13	23.28	24.76
Light trucks	3.05	2.69	2.76	2.72	2.89
Medium trucks	4.43	4.39	4.43	4.60	4.56
Heavy trucks	25.96	25.46	26.00	24.33	23.96

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.

TABLE 14. Distribution of Vehicle-Miles Traveled (1000)

Vehicle type <sup>a</sup>	State maintained		Total	
	Vehicle miles	Percent	Vehicle miles	Percent
Cars	21,726,193	61.00	25,806,143	60.76
Buses	158,582	0.45	283,572	0.67
Pickups & vans	9,838,731	27.63	12,303,657	28.97
Light trucks	562,784	1.58	647,125	1.52
Medium trucks	655,123	1.84	721,838	1.70
Heavy trucks	2,673,461	7.51	2,708,699	6.38
Total	35,614,875	100.00	42,471,035	100.00

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.



TABLE 15. Trend in Revenue per Vehicle Mile (cents)

Vehicle type <sup>a</sup>	Fiscal year				
	1989	1991	1993	1995	1997
Cars	2.05	2.02	1.92	2.24	2.25
Buses	2.82	2.19	3.28	5.32	5.82
Pickups and vans	2.43	2.38	2.32	2.71	2.86
Light trucks	4.76	4.27	4.36	5.45	5.81
Medium trucks	7.97	6.54	6.72	7.59	7.92
Heavy trucks	10.45	10.07	10.27	10.29	10.20
Average	2.93	2.82	2.74	3.13	3.19

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.

TABLE 16. Trend in Revenue to Cost Ratio

Vehicle type <sup>a</sup>	Fiscal year				
	1989	1991	1993	1995	1997
Cars	0.98	1.01	0.98	0.96	0.94
Buses	0.33	0.21	0.41	0.79	0.78
Pickups and vans	1.06	1.10	1.12	1.16	1.19
Light trucks	1.00	1.06	1.13	1.40	1.39
Medium trucks	0.66	0.63	0.89	1.08	1.08
Heavy trucks	1.12	1.03	0.99	0.91	0.91

<sup>a</sup>Cars include motorcycles as well as passenger automobiles, 6,000-pound trucks are considered to be pickups and vans, light trucks have gross weights of 10,000 to 26,000 pounds, medium trucks have gross weights from 32,000 to 59,999 pounds, and heavy trucks have gross weights of 60,000 pounds or more.

TABLE 17. Trend in Weight-Distance-Tax Revenue and its Collection

Fiscal year	Vehicle miles of travel (1000)	Estimated revenue (\$1000)	Reported revenue <sup>a</sup> (\$1000)	Percent of estimate
1989	2,094,271	83,771	55,274	64.8
1991	2,170,217	86,808	59,506	68.5
1993	2,410,543	96,422	67,895	70.4
1995	2,485,175	70,827	57,075	80.6
1997	2,708,699	77,198	63,024	81.6

<sup>a</sup>Includes surtax when appropriate but excludes interest and penalties.

TABLE 18. Trend in Fuel Consumption and its Estimation

Fuel type	Fiscal year	Estimated gallonage (1000)	Reported gallonage (1000)	Percent of estimate
Gasoline/gasohol	1989	1,678,321	1,810,990	107.9
	1991	1,701,792	1,833,750	107.8
	1993	1,868,932	1,908,037	102.1
	1995	1,924,308	2,025,455	105.2
	1997	2,028,035	2,034,739	100.4
Special fuel	1989	519,647	495,884	95.4
	1991	528,113	488,179	92.4
	1993	556,814	521,073	93.6
	1995	578,459	577,117	99.8
	1997	623,143	704,817	113.1
Total	1989	2,197,968	2,306,874	105.0
	1991	2,229,905	2,321,929	104.1
	1993	2,425,746	2,429,110	100.1
	1995	2,502,766	2,602,573	104.0
	1997	2,651,178	2,739,557	103.3

TABLE 19. Trend in Fuel-Tax Revenue and its Estimation

Fuel tax	Fiscal year	Estimated revenue (\$1000)	Reported revenue (\$1000)	Percent of estimate
Heavy vehicle surtax	1989	7,831	5,384	68.8
	1991	7,782	5,528	71.0
	1993	8,378	6,272	74.9
	1995	8,385	7,310	87.2
	1997	10,032	2,008	20.0
Carrier surtax	1989	17,736	12,084	68.1
	1991	17,861	12,435	69.6
	1993	19,136	14,808	77.4
	1995	19,350	15,008	77.6
	1997	20,987	14,439	68.8
Normal	1989	233,385	248,666	106.5
	1991	237,173	242,326	102.2
	1993	257,805	257,431	99.9
	1995	265,456	272,896	102.8
	1997	280,447	284,519	101.5

Note: The heavy vehicle surtax was repealed effective July 15, 1996 and was only collected during the first quarter of fiscal year 1997.



APPENDIX A  
TECHNICAL DOCUMENTATION

## 1. GENERAL CONCEPTS

- The analysis is limited to those costs and revenues associated with the state-maintained system of highways.
- Allocation guidelines are identified in Tables 2-5.

## 2. PROCEDURE

Two Excel workbooks provide the mechanism for updating the cost and revenue allocations. "New C Tables.xls" is used for cost allocation and "New R Tables.xls" is used for revenue attribution. The update requires that new information be supplied to both "New C Tables.xls" and "New R Tables.xls." Input information is identified by red, italicized print. Some of the input information comes directly from printouts supplied by KyTC. Other input information must be calculate in other Excel workbooks as listed in the METHODOLOGY section of this appendix.

Additionally, information from "New C Tables.xls" must be transferred to "New R Tables.xls" during the updating process. Specifically, the vehicle-miles-of-travel data of Table C8 and the registered-weight data of Table C19 must be copied to Tables R2 and R3, respectively.

The C and R Tables are printed automatically using a print macro embedded in each workbook. The print macro button is located in the "Title Page" worksheet in both the "New C Tables.xls" file and the New R Tables.xls" file.

## 3. FILE IDENTIFICATION

New C Tables.xls	An Excel workbook used for allocating highway costs to various vehicle types and weight categories
New R Tables.xls	An Excel workbook used for attributing highway revenues to various vehicle types and weight categories
98stars.xls	An Excel workbook designed to process construction cost data extracted from the Statewide Accounting and Reporting System (STARS) file
stars.f	A Fortran program used to match the STARS file expenditures with the functional class, rural/urban designation and number of lanes for each roadway in the HPMS file
98hcai-1.xls	An Excel workbook into which Interstate classification data is entered on a segment by segment basis. A comma-separated-value file is produced for input to the QuickBasic4 program, 98hcai.bas.
98hcai-2.xls	An Excel workbook used to calculate travel (VMT) on Kentucky Interstates and the average composition of the traffic stream (percentages by vehicle type) on Interstate highways as a function of location (rural/urban) and number of lanes.



98hcai.bas	A QuickBasic4 program to project Interstate classification data to the base year and to calculate vehicle-type percentages. The percentages are then transferred manually to 98hcai-2.xls.
Hcafuels.xls	An Excel workbook which computes the average percentage of diesel fuel usage for input to Table R5
98hcafunds.xls	An Excel workbook which categorizes and sums highway revenue and expenditure data extracted from "The Financial Report to Management and Supplemental Information Schedules for the Period of July 1, 1996 to June 30, 1997" (also contains historic information)
98RegWt.xls	An Excel workbook used to store prior year registered weight information and to produce current averages
hcausage.xls	An Excel workbook for processing and summarizing usage-tax revenue
98TabC2.xls	An Excel workbook for calculating total mileage, vmt and aadt for HIS data by functional class. The data produced in this workbook is input for Table C2.

#### 4. METHODOLOGY

##### APPENDIX B

##### Expenditures and Revenue Tables:

- 1) Open 98hcafunds.xls. This is the worksheet for the tables in Appendix B. Sort the worksheet by columns B & C for data entry. Carefully match entry blanks with information found in the Financial Report to Management. Use the previous year's Financial Report as a guide for choosing the appropriate numbers for each category. Make sure to note new categories and their relevance to the report. Add new categories in appropriate places, labeling each with a number in column A. This number is used for sorting.
- 2) Resort by column A for to get the totals for each category found in Appendix B. Categories which have been added to the report will have to be placed in the appropriate group found in Appendix B. Make sure to check the formulas in the subtotal cells as adding new categories will change the summation ranges.

##### APPENDIX C

##### Table C1:

##### Input:

##### Summary of Expenditures on State-Maintained System

The Transportation Cabinet's "Financial Report to Management and Supplemental Information Schedules for the Period of July 1, 1994 to June 30, 1995" was the primary source for expenditure data. The following essential expenditure categories were used:

- Expenditures
  - Capital
  - Maintenance and Traffic Services
  - Administration
  - Enforcement
    - Motor Carriers
    - Other
  - Miscellaneous

Appendix C links specific cost items identified in the "Financial Report ..." to the above categories.

Data from the STARS database is used to distribute capital costs into seven elements including planning and design; right of way; utility relocation; grade, drain, and surfacing; resurfacing; bridges; and miscellaneous (later, in Table C12)

Rural Secondary expenditures were distributed among capital, maintenance and administration categories based on information provided in the Transportation Cabinet's "Financial Report to Management and Supplemental Information Schedules for the Period of July 1, 1994 to June 30, 1995."

Input: Description: Annual expenditures for construction, maintenance and traffic services, administration, enforcement, and miscellaneous needs for state-maintained system  
 Source: Financial Report to Management and Supplemental Information Schedules for the Period of July 1, 1996 to June 30, 1997 (see Appendix B).

Procedures:

- 1) The information for Table C1 comes from the Expenditure data in "Appendix C, Identification of Cost and Revenue Elements." New data which must be entered is in red and comes directly out of the appendix. Check that you are getting the correct figures out of the appendix by comparing last year's Table 1 with last year's appendix. Elements which must be entered include:

Expenditure Element	Source / Location of Data
Capital Subtotal	Expenditures, Capital Subtotal
Structures	Maintenance & Traffic, Mn-bridge maintenance
Traffic Services	Maintenance & Traffic, Mn-traffic
Main. & Traf. Subtotal	Maintenance & Traffic Subtotal
Administration	Administration Subtotal
Motor Carriers	Enforcement, Motor Carriers Subtotal
Other Enforcement	Enforcement, Other Subtotal

## Table C2:

### Input:

#### Highway System Mileage and Vehicle-Miles Traveled

This table is updated with data from the Highway Information System File (HIS). Information is categorized by functional classification, rural/urban designation, and number of lanes and includes data for mileage, vehicle-miles traveled, and annual average daily traffic. The mileage and vehicle-miles traveled were summed overall and a weighted mean for annual average daily traffic was calculated.

The mean AADT for each highway category was calculated based only on those records listing a non-zero AADT. This mean was weighted by the section length. Vehicle-miles traveled was calculated using the following formula:

$$\text{VMT} = (\text{Section length} * \text{AADT} * 365) / 1000$$

If a record did not have an AADT, the weighted mean AADT was used to estimate the vehicle-miles of travel.

This data set is sorted by functional classification, rural/urban designation and number of lanes. A mean AADT weighted by section length is computed. This weighted AADT is then used together with the aforementioned formula to make the necessary estimates in cases where AADTs have not been recorded.

Sums are calculated for number of sections, mileage, vehicle-miles traveled, number of sections with AADT, and mileage with AADT.

Input: Description: Highway miles, vehicle-miles traveled, and AADT by highway classification  
Source: 1996 Highway Information System (HIS) file, Division of Planning, KYDOH and total VMT estimates (both statewide and state-maintained system) provided by the Division of Planning for FHWA's 1995 Highway Statistics

### Procedures:

- 1) Two files are required to complete the table. Use the HPMS format file for state-maintained roads (final96.ext) and the one for local roads (ext.loc). Use the programs his.f and loc.f to pull out desired fields in both data files. These programs also select only those routes which have roadway status "open" (codes 1 or 8).
- 2) Pull output files (his.out and loc.out) into KEDIT or similar editing program. Combine the files into one file and sort the rows by the control column (columns 10 & 11) and then by the roadway classification (columns 7 & 8). For the 1998 report, this combined file is called tablec2.out.
- 3) Open Excel Worksheet file 98TABC2.XLS. This file has a worksheet for each of the roadway specifications found in Table C2. Start with the worksheet for int\_rur which stands for Interstate, Rural --the first category in Table C2. Copy the section from KEDIT which has control column=01 (state-maintained) and classification column=01 (Rural Interstate)

into the appropriate columns in the Excel worksheet. You may have to copy it as one column and then use the Data>Text to Columns function to separate the data fields. Continue with the same procedure for the other categories. The categories are identified as follows:

Functional Class	Rural or Urban	Govt. Control	Functional Code
Interstate	Rural	01	01
Principal Arterial	Rural	01	02
Minor Arterial	Rural	01	06
Major Collector	Rural	01	07
Minor Collector	Rural	01	08
Local	Rural	01	09
Interstate	Urban	01	11
Freeway & X-way	Urban	01	12
Principal Arterial	Urban	01	14
Minor Arterial	Urban	01	16
Collector	Urban	01	17
Local	Urban	01	19
County Maintained	Rural	02	07, 08, 09
	Urban	02	17, 19
City Maintained	Rural	04	09
	Urban	04	14, 16, 17, 19
Other	Rural	11, 21, 60, 64, 66	09,
	Urban	11, 70	16, 17, 19,

The categories defined in the above table include only those found in the data set used in 1998. To determine the placement of other categories, refer to the codes listed in the HPMS File Layout Code Sheet on pages IV-23 and IV-27.

- 4) In each worksheet, there should be a column titled "Total Mileage" which calculates the section length by dividing the "Section Length" values by 1000. There should also be columns calculating the section lengths having AADT>0, the weighted AADT values and the VMTs. Make sure to check all the cell formulas to assure that the formula references are correct. The values in the Summary Table should be copied and pasted as values in the appropriate space in the worksheet titled "C2" in the "C Tables" file.
- 5) Mileage, vehicle-miles and AADT data for the interstates should be compared to the same values found in the Appendix E tables. Because the data in the Appendix E Tables is considered to be more accurate, replace the values in Table C2 with the values calculated

from the E Tables for interstates only. The calculations are located in the Appendix E Tables file which is found in the 98hcai-2.xls file in Worksheet "Table C2".

- 6) The County, City and Other categories will need some adjustment to fit the totals provided by KyTC (Greg Witt provided those for the 1998 report). The totals provided by KyTC are the Mileage and Vehicle Miles Traveled for the State-maintained system and for the Total Statewide system as of December 1996. These totals should be entered into the appropriate cells in the worksheet titled "C2" in the "C Tables" file along with the calculated mileage and AADT figures. The adjustment procedure should be completed by using the Tools > Solver function in Excel to make the column sums equals those provided by KyTC. The changes in individual cells should be minor--make a visual check to assure that this is so.

### Table C3:

#### Input:

Highway System Mileage and Travel by Terrain

Description: Highway-mileage and vehicle-mile percentages by terrain/facility type and functional classification

Source: HIS file, Division of Planning, KYDOH

#### Procedures:

- 1) The information for Table C3 is found in the HPMS file "final96.ext." The desired information is extracted from the file using the terrain.f Fortran program which creates an output file titled "terrain.out." The program writes only those sections which are open and which are rural. The layout of this file is as follows:

Characters	Variable
1 - 2	Functional Class
3 - 8	Section Length
9 - 14	AADT
15 - 16	Number of Lanes
17 - 17	Type of Terrain (1=flat, 2=rolling, 3=mountainous, 0=urban section so don't use these)

- 2) Using the Open File > Fixed Width function in Excel, open the terrain.out file in Excel. The file I used is called TableC2.xls and contains several sheets for calculations. After opening the file as Fixed Width and defining the data fields, sort the data by the functional class and the number of lanes. Divide the Section Length by 1000 to get the "adjusted section length." The remaining columns set up in the worksheet calculate the mileage and VMT for each of the rural road types listed in Table C3. Summary tables are located at the far right of each worksheet page. The percentages in red are the figures which should be entered into the appropriate spaces in the Worksheet titled "C3" in the "C Tables" file.

- 3) Copy the red percentages at the end of each calculation table to the main table in the worksheet titled "C3" in the "C Tables" file. This table references Table C2 for the mileage statistics used along with the percentages to calculate the desired information.

#### **Table C4:**

##### Input:

##### Percent of Traffic Stream by Vehicle Type

Because of the significance of travel on the Interstate system, Interstate travel was treated in greater detail than travel on other types of highways.

Data for all classification counts that had been conducted on Interstate highways during the period, 1987-96, were manually extracted from hard copy reports and entered into an Excel workbook, 98hcai-1.xls. The data were sorted by route and milepoint, and a comma-separated-value file was produced therefrom. 98hcai.bas read this file and, where multiple-year data were available for a segment, produced a least-squares estimate of 1996 classification data. When only single-year data were available, that data was assumed to provide the best estimate of 1996 traffic composition.

The classification estimates, together with 1996 AADTs that had been extracted from the historical volume (TVS) file, were then manually entered into the Excel workbook, 98hcai-2.xls. Rural/urban designation and number of lanes, obtained from the HIS file, were added as necessary to 98hcai-2.xls. The computation of vehicle miles traveled by each vehicle type on each segment of Interstate was straightforward. A sort was then made on rural/urban designation and number of lanes of travel and cumulative vehicle miles of travel were obtained for each vehicle type on each category of Interstate highway. Percentage composition of the traffic stream was determined from these vehicle-mile estimates.

- B. The figures for non-interstate road types are calculated using SAS programs which weight each segment in each functional class by roadway AADT. In the 1998 report, these figures were completed by Dave Cain.

**Input:** Description: Vehicle-type percentages by functional classification, rural/urban designation, and number of lanes  
Source: 1994-1996 Vehicle Classification Files and 1996 HIS file, Division of Planning, KYDOH

##### Procedures:

- 1) The first step in the table is to calculate the interstate traffic stream percentages. This is done in the "98hcai-2.xls" file in the "Table C4" worksheet. The volume counts for each interstate section (found in the same file in the worksheet titled "Worksheet") are copied to the "Table C4" worksheet along with the rural/urban designation and number of lanes for each section. These records are then sorted by rural/urban and lanes. Insert rows between each Rural/Urban and number of Lanes class, sum the VMTs and calculate the Percent of each vehicle class in the traffic stream. The final numbers in red are the percentages which are entered AS VALUES into the "C4" worksheet of the "C Tables" file.

- 2) The figures for non-interstate road types are calculated using SAS programs which weight each segment in each functional class by roadway AADT. In the 1998 report, these figures were completed by Dave Cain.

#### **Table C5:**

##### Procedures:

- 1) The calculation of Table C5 is straightforward. As shown in the worksheet "C5" in the file "C Tables", all figures are calculated using cells in the "C4" and "C2" worksheets. Be sure to make a visual check of the results to assure that there are no formula errors or figures which are largely different from previous years.
- 2) The Fractional Vehicle Miles Table found below Table C5 is used in later calculations of Table C14.

#### **Table C6:**

##### Procedures:

- 1) Table C6 is created by multiplying each of the cells in C5 by the number of axles for that vehicle type. This calculation is shown in the "C6" worksheet in the "C Tables" file.
- 2) The information in the Fractional Axle Miles Table found below Table C6 is used later in Tables C14, C15, etc...

#### **Table C7:**

##### Input:

Passenger Car Equivalentents as a Function of Registered Weight

Input: Description: Basic passenger car equivalentents  
Source: Highway Capacity Manual (TRB Special Report 209) and 1982 Federal Cost Allocation Study (24)

##### Procedures:

- 1) Table C7 remained the same from the 1996 to the 1998 report.

#### **Table C8:**

##### Procedures:

- 1) Table C8 is created with the formulas found in the table and the referenced worksheets (C19 & C7). No new data is added to this table.

**Table C9:**

Procedures:

- 1) No new information is added to Table C9. The cells reference Tables C3, C5 and C8.

**Table C10:**

Input:

Distribution of Equivalent-Single-Axle-Load-Miles Traveled

With exception of the damage factors, ESAL'S per vehicle, Table C10 is computed based on previously supplied information. Damage factors are usually developed using the three most recent years of weight data (1994-1996). Routine processing of the type used annually in updating the state's ESAL-estimation model provides the necessary averages.

Input: Description: Unit pavement damage factors (ESALs/vehicle) by vehicle type and highway type  
Source: 1994-96 Loadometer (WIM) Files, Division of Planning, KYDOH

Procedures:

- 1) The input (numbers in red) for Table C10 was calculated by Dave Cain for the 1998 report. This information is the ESALs/vehicle by vehicle type and 6 classes of roads. The unit ESALs are used to distribute the VMT in Table C5 to ESAL miles traveled in Table C10. The following table shows which unit ESAL categories are used to calculate ESAL miles for each of the roadway categories listed in Table C10. Be sure to check all cell references to assure proper translation of formulas.

Unit ESAL Roadtype Category	Functional Class Category in Table C10
Interstate-Rural	Interstate-Rural
Arterial-Rural	Principal & Minor Arterials-Rural
Collector & Local-Rural	Major & Minor Collectors, Locals-Rural
Interstate-Urban	Interstate-Urban
Major Arterial-Urban	Freeway, Expressway, Principal Arterial-Urban
Other-Urban	Minor Arterial, Collector, Local-Urban

**Table C11:**

Procedures:

- 1) Table C11 is the same as the one in the 1996 report. No new information is needed.



## Table C12:

### Input:

#### Distribution of Average Construction Expenditures

These fractions represent the average distribution of construction expenditures during FY 1995-1997. The basic data source is the STARS file. This large file is matched with the HIS file to determine, for each specific expenditure, the highway class to which it is to be attributed. Only expenditures having FDxx program project codes were considered to be construction related. Type of construction element was identified by phase/operation codes as follows:

Planning and design	P, D
Right of way	R
Utility relocation	U
Grade, drain, and surfacing	C, G, S
Resurfacing	H
Bridges	B
Miscellaneous	A, E, F, I, L, M, N, T, X, Y

Input: Description: Fraction of construction expenditures by highway type and construction element  
Source: FY 1995-1997 STARS files, Accounts, KYDOH

### Procedures:

- 1) There are two files required to obtain the information for this table. One file comes from the STARS file at KyTC and is typically altered to include desired fields (Neil Tollner completed this task for the 1998 report). The file's title is cost97.txt and its layout is as follows:

<u>Item</u>	<u>Characters</u>
Year	1-2
Fund	3-4
Program	5-8
County	9-11
Route Number	12-15
Beginning Milepoint	16-18
Ending Milepoint	20-22
Phase Worktype	23-23
Project Auth. No.	24-28
Expenditure	29-43

The Stars file has some problems in it that must be fixed before matching with the HAMS file. First, pull the entire file into an editing program such as KEDIT. Sort the file by the route number (characters 12-15). Remove the block at the top of the file which has no route numbers. Remove records toward the end of the file having nonsensical route numbers (combinations of letters) or no milepoints. Some route numbers will be a mix of letters and numbers. If these are reasonable, such as US27 instead of 0027, then replace the Us and the Ss with 0s using the Find>Replace function in Kedit. Continue this process until a usable file is created. The non-standard lines must be removed prior to using the file as input for the matching program because they will cause fatal errors during the program run time. (Of the

180,453 Stars records in 1998, 38,933 were unusable due to missing and inappropriate route numbers, and missing or inappropriate milepoints.) However, save all expenditures in the original stars file in order to determine the total amount.

The second file required is the HAMS data file for both state-maintained roads and local roads. This file is created by combining the final96.ext and ext.loc files used in the Table C2 analysis. The file layout for these files is found in the Data Item Summary provided by KyTC for the HAMS file. (Greg Witt provided this layout for the 1998 report).

- 2) The stars.f program is used to match the STARS file expenditures with the functional class, rural/urban designation and number of lanes for each roadway in the HAMS file. The next step is to pull the stars.out file into KEDIT or a similar editing program. Sort the file based on functional class and by the number of lanes. This sort will place all unmatched records at the top of the file. These should be deleted for the as they can not be linked to any particular fund. (In the 1998 report, only 133,867 of the 141,520 stars records were matched with hams data). Use SPSS or a similar statistical package to find summaries of expenditures for each class, number of lanes and construction element listed in Table C12. I used the Case Summaries function in SPSS to sum expenditures by class, lanes and type of work.
- 3) Insert expenditure sums into the appropriate categories in Excel file 98stars.xls. The numbers for Table C12 are a combination of three years of data as shown by the worksheet names in the file. For the 1998 report the table is a combination of 1994, 1995 and 1996/97 data. When updating, remove the earliest year and add the newest year so that three years of data are always maintained. The yearly data period is different for the 1996/97 update because the construction spending costs have been changed to the fiscal calendar as of 1996/97.
- 4) As found in the 98stars.xls worksheet the 'cost' sheet sums the data over the three year periods. The '%' sheet determines the percent of the total expenditures made up by each category. These are the numbers that should be copied as values into the 'C12' worksheet in the "C Tables" file. The values in red are those that should be replaced. Make sure to add any new categories of roads (this year I added an urban interstate, 8-lane section).

### **Table C13:**

#### Procedures:

- 1) The first step in creating Table C13 is to recalculate the values found in Table C12. The recalculation is found directly below Table C12 in the "C12" worksheet of the "C Tables" file. This bottom table is the distribution of expenditures without the consideration of resurfacing. The resurfacing category is separated from the rest of the categories at this point in order to properly calculate the figures for Table C13. Table C13 uses the Capitol Costs found in Table C1 and the distribution percents in Table C12 to get approximate dollar values. The Capitol costs in Table C1 are broken into Resurfacing Costs and Other costs. Therefore, in order to most accurately calculate Table C13, it is necessary to break the distribution figures into Resurfacing and Other categories. The Other categories are represented in this bottom table. The Resurfacing category distributions are calculated in the formulas for that column in Table C13 which is found in the "C13" worksheet in the "C Tables" file.

**Table C14:**

Procedures:

- 1) No new input information is needed for Table C14. The formulas in the table refer to the worksheet titled "WS1" which is found just prior to the "C14" worksheet in the C Tables file. Worksheet WS1 gathers information from other worksheets as shown in the cell formulas. Make sure to check the formulas to assure that they are reading what you want them to.

**Table C15:**

Procedures:

- 1) No new input is needed for Table C15. The cell formulas refer to Tables C5, C6, C9, C10 and C11. Be sure to check formulas!

**Table C16:**

Procedures:

- 1) No new input is needed for Table C16. Make sure to check all cell formulas for accuracy when copying.

**Table C17:**

Procedures:

- 1) No new input is needed for Table C17. Make sure to check all cell formulas for accuracy when copying. The tables found below Table C17 make the calculations necessary to complete Table C17.

**Table C18:**

Procedures:

- 1) The information for Table C18 is found in Tables C15 and C16, as shown in the cell formulas.

**Table C19:**

Input:

Percentage of Vehicles by Axle Class in Registered Weight Categories

Input: Description: Percentage of vehicles by axle type in various registered weight categories, number of cab cards issued  
Source: Sample comprised of Kentucky-licensed trucks involved in reported accidents for the period 1992-1996. Type of truck (straight, single-trailer

combination, or multiple-trailer combination), number of axles, and license number obtained from accident file (Department of State Police). Registered weight determined from license number. In accordance with past practice, straight-truck weight distributions were determined from non-apportioned trucks (farm, commercial, and limited), and combination-truck weight distributions were determined from apportioned trucks. Data from the cab card file was used to proportion 62,000-pound trucks between 59,999- and 62,000-pound declared weight categories. Excel workbook 98RegWt.xls was used in processing the data.

Procedures:

- 1) The first step in creating Table C19 is to collect the necessary data. The truck population from the KY accident database is matched with registered weight information using license plate numbers. This process was completed in the 1998 report by Neil Tollner. The distributions for apportioned and non-apportioned trucks are then entered into the appropriate sheets in the 98RegWt.xls file. This file uses five years of accident data to produce truck distributions in the traffic stream.
- 2) These distributions are then entered into Table C19 in the appropriate cells. The distributions for the 62,000 lb. trucks are entered in the line below the table, as shown. These distributions are divided into distributions for 59,999 and 62,000 trucks in the table using the cab card percentages listed. The cab card percentages are calculated from the two lower tables on the vehicle ID card printout obtained from Mike Kinnaird at KyTC. The SU or single-unit percentages come from the second table on the printout labeled with code "S". The Comb or combination percentages come from the lower table labeled "T". Be sure to enter the percentages to 10-15 decimal places, it is necessary for use of these numbers in other tables.

**Table C20:**

Procedures:

- 1) No new input is needed for Table C20, all info needed is found in Tables C14 and C19. Make sure to check all cell formulas for accuracy when copying.

**Table C21:**

Procedures:

- 1) All info needed is in Tables C16 & C19. Make sure to check cell formulas.

**Table C22:**

Procedures:

- 1) All info needed is in Table C20. Make sure to check cell formulas.

**APPENDIX D**

**Table R1:**

Input:

Summary of Revenue Attributed to State-Maintained System

The Transportation Cabinet's "Financial Report to Management and Supplemental Information Schedules for the Period of July 1, 1996 to June 30, 1997" was used to determine the revenue deposited in the state road and federal funds and, hence, attributed to the state-maintained system. The following essential categories were used:

- Revenue
  - Fuel Tax
    - Heavy Vehicle Surtax
    - Carrier Surtax
    - Normal
  - Registration and License Fees
    - Cars
    - Buses
    - Motorcycles
    - Trucks
      - Kentucky
      - Apportioned
    - Vehicle Identification Cards
    - Permits
  - Other
    - Miscellaneous
    - Operator's License Fees
    - Commercial Driver's License
    - Usage Taxes
      - Buses
      - Other Vehicles
    - Road Tolls
    - Other Motor Carrier Taxes
      - Weight-Distance
      - Extended-Weight Permits
  - Federal Aid

In addition, federal-aid revenue was distributed to fuel, usage (trucks and trailers), use, and other categories based on the proportion of federal aid shown in the Federal Aid Highway Trust Fund receipts from Kentucky (the highway account of Table FE-9 of FHWA's "Highway Statistics").

Input: Description: Statewide revenue totals  
Source: Highway Statistics (1995), FHWA (25); Financial Report to Management and Supplemental Information Schedules for the Period July 1, 1996 to June 30, 1997, KYTC, Division of Accounts (see Appendix B)

Procedures:

- 1) The non-federal (red) numbers for Table R1 come directly out of the revenue portion of Appendix C. Be sure to match the categories. The federal information or green numbers are calculated based on the percentages of each type of revenue found in Table FE-9 of the 1995 Highway Statistics book. These proportions are then multiplied by the Federal Aid total found in Appendix B.

#### **Table R2:**

##### Procedures:

- 1) Table R2 is the same as Table C5 so just copy over the values only. Be sure to check all of the cell formulas.

#### **Table R3:**

##### Procedures:

- 1) Table R3 is the same as Table C19 so just copy over the values only. Be sure to check all of the cell formulas.

#### **Table R4:**

##### Procedures:

- 1) The figures in Table R4 are calculated using cell references to Tables R2 and R3. Be sure to check the formulas for accuracy. Another check can be made by comparing the totals in R4 with the totals in R2 to be sure they are the same.

#### **Table R5:**

##### Input:

Diesel Powered Trucks by Truck Class

Input: Description: Percentage of trucks that are diesel powered as a function of gross weight  
Source: Annual sales/production data from "AAMA Motor Vehicle Facts & Figures '97," (contacts: Virginia Reinfeldt and Rob Birch, 313-872-4311)

##### Procedures:

- 1) Information for Table R5 is calculated using the worksheet in the Hcafuels.xls file. The first step is to update the information in the Hcafuels.xls file using the factory sales information provided in the AAMA's Motor Vehicle Facts and Figures 1997. Information for cars for the first table comes from page 3, Annual Factory Sales of Passenger Cars. The remaining information for the first table comes from page 7, US Total Factory Sales of Trucks and Buses by Weight Categories. Be sure to match the sales figures with the appropriate weight categories.

- 2) The second step is to update the second table in the Hcafuels.xls file. The information comes from page 8 in the AAMA report, US Total Factory Sales of Diesel Trucks. Enter the appropriate data to update this table.
- 3) The next step is to add new lines in the remaining tables for additional years of data. Copy down the formulas in the third table. Add travel information in the fourth table from the AAMA report, pages 39 & 40, Vehicles in operation by model year. The final table calculates and sums the percentages which are entered into the red spaces in Table R5. Be sure to translate the percentages to the appropriate weight categories--they are different in Table R5 and the Hcafuels.xls tables.

### **Table R6:**

#### Input:

#### Fuel Consumption by Vehicle Type

**Input:** Description: Fuel consumption rates (Table VM-1), percentage of cars and buses that are diesel powered (assumed to be 1 percent and 75 percent respectively), and statewide gallons of gasoline/LPG, gasohol, and diesel fuel  
**Source:** 1995 Highway Statistics for fuel consumption rates, Motor Vehicle Manufacturers' Association for percentage of diesel powered cars, Division of Planning for consumption totals for all fuel classes (Keith White), and Department of Pupil Transportation (Perry Watson, 564-4718) for percentage of diesel-powered school buses

#### Procedures:

- 1) Information for Table R6 comes from various sources. The first set of numbers in red in the table are the Fuel Efficiency (mpg) numbers for the different user classes. This information comes from the 1995 Highway Statistics book, Table VM-1, page V-92. The numbers we are interested in are under the 1995 Average Miles Traveled per Gallon of Fuel Consumed category. Transfer these numbers into the first line of Table R6, using last year's table as a model.
- 2) The second set of required numbers are the percent special fuels for cars and buses. The percent of special fuels for cars comes from the Hcafuels.xls file calculated for Table R6. The cars percentage sum is listed in the last table in that file. The percent of diesel powered buses is the same as the last report (75%). This estimate of the percent of diesel-powered school buses was made for the last report by Perry Watson, Department of Pupil Transportation, 564-4718.
- 3) The third set of required numbers are the gallons of fuel used statewide. These are the red figures in the lower right side of the tables under the categories "Gasoline (includes LPG)", "Gasohol," and "Special Fuels" (diesel). These numbers come from the monthly motor fuel consumption tables produced by KyTC. It should be noted that the adjustment process using gallons of fuel as reported by KyTC has been eliminated from the procedure beginning with Report KTC-98-3. The step to force the estimated gallons of fuel to match the reported gallons of fuel was eliminated because it appeared to introduce a process which widened the gap even further between estimated and reported revenue as shown in Table 19.

- 4) The remainder of the cells are calculated using references to Tables R2 and R5.

**Table R7:**

Input:

Motor Fuel Tax Revenue by Registered Weight Categories

Exclusions to reported tax rates include Kentucky's \$0.014 per gallon petroleum environmental assurance fee and federal contributions dedicated to transit (\$0.015 per gallon), leaking underground storage tanks (\$0.001 per gallon), deficit reduction (\$0.068 per gallon), and unspecified (\$0.006 per gallon)

Input: Description: Kentucky and federal fuel tax rates by vehicle type  
Source: Kentucky Revised Statutes for Kentucky rates; supplemental information from a revenue source summary prepared by Sandra Pullen, KYTC; Highway Statistics 1995 (Table FE101) for federal rates; a summary of federal tax rates prepared by James Getzewich from FHWA's Office of Highway Funding and Motor Fuels Division (202-366-0170)

Description: Percentage of Kentucky regular fuel taxes deposited in Road Fund  
Source: Kentucky Revised Statutes

Procedures:

- 1) The red figures in the top sections of Table R7 are rates set by legislation. These may change from year to year so they must be verified by Sandy Pullen at KyTC. The other item which must be verified is the Kentucky tax for the Road Fund deposit found at the bottom of the table. For this report, the figure of 74% did not change from last year. Tables R1, R3, R6 and R7 are referenced in the remaining cell formulas.

**Table R8:**

Input:

Motor Vehicle Registration Fees

Input: Description: Motor vehicle registration fees (truck fees are automatically transferred for computations to Table R9)  
Source: Department of Motor Vehicle Regulation, KYTC; Kentucky Revised Statutes

Procedures:

- 1) The fees in Table R8 are also set rates and should be verified by Sandy Pullen at KyTC. For the 1998 report, these fees were all increased by \$0.50 for reflectorization.



## **Table R9:**

### Input:

#### Truck Registration Revenue

**Input:** Description: Number of Kentucky trucks by registered weight class  
Source: Report No. R2145, Department of Motor Vehicle Regulation, Division of Motor Vehicle Licensing, KYTC

Description: Equation for reduction in registration fees for farm trucks  
Source: Kentucky Revised Statutes

Description: Equation for reduction in registration fees for exempt trucks  
Source: Kentucky Revised Statutes

Description: Number of Truck I.D. cards issued  
Source: Department of Administrative Services, Division of Automated Services; Department of Vehicle Regulation, Division of Motor Carriers

### Procedures:

- 1) The first step for Table R9 is enter the number of Kentucky registrations in the first section of the table. The info for this section is found in the KY Motor Vehicle Registration Summary Report from KyTC, Cathy Bickers, 184-3298. Enter the number of registrations into the appropriate weight categories. Enter Farm registrations in the Farm category, Commercial registrations in the Other category, and sum the remaining categories for entry in the Exempt category.
- 2) The second step is to verify the registration fees in the second section of the table. The figures in red for the Farm and Exempt categories are calculated as a percentage of the Other registration fees. For this report, Farm fees are 40% of the Other fees (as shown in the cell formulas) and Exempt fees are 75% of the Other fees. Make sure to check that these percentages have not changed for a new report.
- 3) The third step is to enter the number of vehicle ID cards. These numbers were produced by Mike Kinnaird at KyTC.
- 4) The remainder of the cells are formulas referencing other cells or worksheets and should be verified. The formulas depend on information in worksheets R1 and R8.

## **Table R10:**

### Input:

#### Toll Road Revenues and Their Allocation

**Input:** Description: Revenue from toll roads by toll-system vehicle code  
Source: Department of Fiscal Management, Division of Toll Facilities, KYTC (Nancy Craig)

Procedures:

- 1) The toll road revenues for this table are produced by KyTC (Nancy Craig?). The tolls are summarized into categories 1-8 for entry into Table R10.

**Table R11:**

Input:

Total Revenue Generated by Weight Class

The distribution of usage tax among the vehicle classes is determined by a special analysis of the AVIS file. Results, developed with the Excel workbook Hcausage.xls, are entered manually into Table R11. The total is adjusted as necessary to conform with Table R1 entries.

Input: Description: Distribution of usage tax revenue among vehicle classes  
Source: Special analysis of AVIS file, Division of Automated Services  
(Mike Kinnaird)

Procedures:

- 1) The first step in completing Table R11 is to update the information in the Hcausage.xls file. The update info comes from the Hcaregwt.xls file in the section titled "Transfer to Hcausage.xls" which is located to the right of the first table in the worksheet. Copy this column of numbers into the Hcausage.xls file and paste the values only into the section of green text under the heading KY Apport.
- 2) The second input data for the Hcausage.xls file is the figure in cell A5, the KY Usage Tax for Other Vehicles. This number comes directly out of the Appendix C Revenue table under the Usage Taxes, Other Kentucky Vehicles category subtotal.
- 3) The third set of input data for the Hcausage.xls file is entered under the heading "Data" in the cells with pink numbers. This data comes from a printout titled the Vehicle Usage Tax Report Fiscal Year 97 which was provided by KyTC, Cathy Bickers, (502)564-7550. The column of information titled Total Usage Tax should be entered into the Hcausage.xls file under the Data heading. Be sure to check that all cell references in the remaining columns are correct.
- 4) The last column of the table in the Hcausage.xls file, Adj Total, is the column of numbers which is entered into Table R11 in the red numbers under Usage Taxes, Kentucky, Other vehicles. Be careful when transferring the numbers as the Hcausage.xls file does not have a calculation for the 59,999 category. The 62 category in the Hcausage.xls file is split between the 59,999 and 62,000 categories in Table R11. The split was made using the same proportion used in the 1996 report: 46% of the 62 category goes to the 59,999 category and 54% of the 62 category goes to the 62,000 category.
- 5) In order to complete Table R11, it is necessary to check all cell references to other worksheets including R1, R4, R7, R9 and WS1, a worksheet set up in the same file.

**Table R12:**Procedure:

- 1) No new info is required for Table R12. Just be sure to check that all cell references are correct. The worksheets used in this analysis are R11 and WS2.

**Table R13:**Procedure:

- 1) The info in Table R13 comes directly out of Table R11. The cells automatically reference the desired information.

**Table R14:**Procedure:

- 1) The info for Table R14 is copied directly out of Table C22 and pasted into R14. The percentages are calculated automatically.

**Table R15:**Procedure:

- 1) No new information is required for Table R15. The cells reference Tables R13 and R14 for the necessary information.

**Tables R16-R19:**Procedure:

- 1) In order to update Tables R16-R19, several worksheets must be updated. The "axle-to-weight," "vehicle miles," "axle-miles," "PCE miles" and "ESAL miles" worksheets must all be updated with new information. Update the "axle-to-weight" sheet with the info found in Table C19 (or R3). The miles traveled info for each wear measure comes out of the respective C Table: use C5 for vehicle miles, C6 for axle miles, C9 for PCE miles and C10 for ESAL miles. Be sure to check that the cell references in Tables R16-R19 are still accurate after the update.

**APPENDIX E****Tables E1 — E10:**Procedure:

- 1) Update classification count data in file 98hcai-1.xls.
 

A list of classification count locations for each year can be found in the EAL printout. Make sure to find both Rural and Urban Interstate locations.

Using this list, locate count data for each location in "Daily Volumes by Vehicle Type for 1995" and "Daily Volumes by Vehicle Type for 1996"

  - ▶ We are interested in the "AADT" count for the location and the "Annual Average" counts for each type of vehicle.
  - ▶ At the end of the 98hcai.xls file, add this count data for each location listed in the EAL report. Follow the input format in the current 98hcai.xls file. Be sure to pay attention to the spacing of the interstate names, if you don't put the right number of spaces between the "I" and the "Number", the data will not sort correctly. Likewise, make sure to enter milepoints to 3 decimal places.
  - ▶ Sort the 98hcai.xls file first by route, then by milepoint and then by year.
  - ▶ Scan the data to assure all entries are sorted correctly.
  - ▶ Save the 98hcai.xls file as a CSV (comma delimited) file and also save it to a floppy.
  - ▶ Open the 98hcai.csv file in an editor such as KEDIT. Remove the first line of the file which is the heading line from the spreadsheet.

Save the altered 98hcai.csv file to c:\ and a:\.
  
- 2) Compute classification estimates using 98hcai.bas QuickBasic Program.
 

This program uses the 98hcai.csv file as input.

Open the 98hcai.bas file in QuickBasic. This file is also saved as a text file (98hcai.txt) so that it can be read by a general editor as well. Make sure that the input file is listed as a:\98hcai.csv (or appropriate year). The Basic program does not like input files on the hard drive so make sure you use the a:\ drive for input. Likewise, Basic will print the output file to the a:\ drive. Make sure to note the name of the output file (it is currently a:\output).

Run the program by using the Run\Start path on the menu. The program will ask you to enter the "last two digits of the forecast year." So, if your last year of classification data is 1996, the enter "96".

This program makes a least-squares estimate of the classification counts for count locations having more than one year of classification data.

The program will automatically print a hard copy of the output and will also place a copy on the a:\ drive.
  
- 3) Compute percentages of vehicle type traffic
 

Open the a:\output file created with the Basic program in an Excel Worksheet. Make sure columns of data transferred properly into Excel.

Open the 98hcai-2.xls file and click on the sheet labeled "Worksheet." Copy the output data into the "Worksheet" page table where indicated. The table to the far right calculates the percents. The percent calculations are straightforward. The number of vehicles counted in each category is divided by the total number of vehicles in all categories. Make sure to copy the formulas down the page to accommodate the new classification data and that the cell references are correct.

This is the data that will be entered into the other worksheets found in the 98hcai-2.xls file (I24, I64, I65, I71, I75, I264, I265, I275 and I471).
  
- 4) Update the 98hcai-2.xls file

Open the first interstate-numbered sheet in the file (I24). Check the HAMS data file for new breakdowns of section lengths. Some of the sections listed in the previous year's worksheet may now be broken into smaller sections in the HAMS data file. If this is true, add these sections in the appropriate places in each of the interstate worksheets.

Because there is not classification count data for every range of interstate listed in this table, the update should be done one entry at a time. Each of the classification counts are taken at a specific milepoint. Find the count location that fits within the milepoint range of each interstate section and update the info in that section with the traffic stream percentages. Make sure that if you use the Copy function to transfer the data, you use the Paste Values function to paste. You don't want to paste the formulas into the table. Repeat this for each interstate-numbered sheet.

Insert a column for the latest AADT counts. These counts are taken from the state's CTS volume file for the year 1996.

Insert column for 1996 VMT calculation. Multiply roadway section length by volume by 365 then divide by 1,000,000 to get this figure.

Calculate VMT for each vehicle type by multiplying the 1996 VMT by each vehicle category classification percentage.

Find Table F1 at far right of calculation table. Copy over 1996 AADT. Sum percentages for all trucks (all categories except cars, motorcycles, buses and 2-axle, 4-tire trucks). Sum VMT for cars (cars, motorcycles and 2-axle, 4-tire trucks), buses and trucks (as defined above).

In the "Weighted Totals" table, calculate the totals for the last row of the F1 table. For the AADT total, take the section length divided by the total roadway mileage and multiply by the AADT. For the truck percentage total, take the same ratio and multiply it by the truck percentages. Sum the columns and this is the number that goes in the Totals slot on Table F1.

Transfer the Table F1 info into the Wordperfect tables set up in the report (AppendixF.wpd).

Repeat these steps for Tables F2-F9. Table F10 is a summary of the other F Tables and most of the info comes directly out of Tables F1-F9. The AADT and % Trucks totals are weighted totals and are calculated at the far right of the Table 9 calculations in 98hcai-2.xls, sheet I 471.

5) Update rural/urban code and # of lanes using the HAMS data file

Look up each interstate section in the hams file by route number and milepoint. Record the correct number of lanes and rural/urban code for each section in Tables F1 - F9. The # of lanes and rural/urban codes are interpreted as follows:

1 = Rural	1, 2 & 3 = 2-lanes
2, 3 & 4 = Urban	4 & 5 = 4-lanes
	6 & 7 = 6-lanes
	8 + = 8-lanes

## REPORT TABLES

These tables are located in the text portion of the report in WordPerfect.

**Tables 1 to 5:** No change in these tables since 1996.

**Table 6:** The information for Table 6 comes from Table C19.

**Table 7:** The information for Table 7 comes from Table R4. The VMT sums for each category are calculated below Table R4 as labeled in the worksheet. The percent change is calculated using the typical formula:  $100 * (\text{new} - \text{old}) / (\text{old} * 2)$ . The percentage in travel stream side of Table 7 is calculated directly from the left side of Table 7 (example:  $100 * \text{cars} / \text{total}$ ).

**Table 8:** The information for Table 8 is found in several worksheets. The percent contribution of vehicle miles by each vehicle type is found in the Table C5 worksheet, below the actual Table C5. Use the column totals for input into Table 8. Use the same process for Axle miles in Table C6, PCE miles in Table C9 and ESAL miles in Table C10. The subtotal for combination trucks is calculated by adding together the percentages for the single- and multiple-trailer trucks. The subtotal for all trucks is calculated by adding the straight truck percentages to the single- and multiple-trailer percentages.

**Table 9:** The info for Table 9 is found in Table C22. A summary of the cost responsibility based on the vehicle categories in Table 9 is shown below Table C22. Sum the costs and input them into Table 9.

**Table 10:** The first section (percent cost responsibility) in Table 10 comes directly out of Table 9. The second section (percent travel) comes from the second-to-last line in Table R4 (state-maintained system average %). The percents in Table R4 must be summed into the categories listed in Table 10 as shown below Table R4. The third section of the table is simple ratios using the info in the first two sections (cost/travel).

**Table 11:** The information for Table 11 is found in Table R11. The summary calculations are made to the far right of Table R11. These numbers should then be carefully transferred to Table 11.

**Table 12:** The info for Table 12 comes out of Table R11. The revenues are summarized into the vehicle categories listed in Table 12. The calculations for this table are shown to the just below Table R11. It should be noted that buses are included in the passenger vehicle category for this table.

**Table 13:** The revenue trend update info for Table 13 comes directly from the last column in Table 11.

**Table 14:** The info for Table 14 is found in Table R4. The VMT sums and percentages for the vehicle categories listed in Table 14 are calculated below Table R4. The sums and percentages are then transferred to Table 14.

**Table 15:** The info for Table 15 is a calculation based on Tables 11 & 14. Divide the revenue total in each vehicle category in Table 11 by the State-Maintained vehicle miles in Table 14 to get the revenue to vehicle mile trend values. Make sure to multiply by 100 since the table is in cents. These figure are then entered into Table 15 under the 1997 column. The average figure on the last line of the table is a weighted average. It is calculated based on the ratios and the state-maintained vehicle miles in Table 14.

- Table 16:** The info in Table 17 is calculated from the figures in Tables 11 and 9. Divide the percent revenue for each vehicle class in Table 11 by the percent cost responsibility for each vehicle class in Table 9. Enter the ratio into Table 16.
- Table 17:** The first column of this table, Vehicle Miles of Travel (1000), comes from the Statewide total line in Table R4. The total VMTs for the 62,000, 73,280 and 80,000 lb categories are summed and entered into Table 17 under the first column. The figure for the second column, Estimated Revenue (\$1000), comes from multiplying the VMT in the first column by 2.85% tax. This figure is then entered into column 2. The third column, Reported Revenue, comes from the Appendix C revenue table under the line-item for weight-distance tax. Finally, the Percent of Estimate calculation is straightforward, divide the Reported Revenue by the Estimated Revenue and multiply by 100.
- Table 18:** The information for Table 18 comes out of Table R6. The figures for the Estimated Gallonage column in Table 18 come from the Unadjusted Statewide Gallons totals in Table R6. The Figures for the Reported Gallonage column in Table 18 come from the Adjusted Statewide Gallonage totals in Table R6. The final step is to calculate the Percent of Estimate by dividing the Reported by the Estimated and multiplying by 100.
- Table 19:** The info for Table 19 is located in Table R7. For the Estimated Revenue column in Table 19, Totals were taken from Table R7 under the Fuel Revenue, State-Maintained System (unadjusted), Kentucky section for the three categories listed (heavy vehicle surtax, carrier surtax and normal use). For the Reported Revenue column in Table 19, figures were taken from the Totals column of Table R7 under the Fuel revenue, State-Maintained system (adjusted), Kentucky section for the three categories listed (heavy vehicle surtax, carrier surtax and normal use). The Percent of Estimate calculation was then straightforward.

## REPORT FIGURES

- Figure 1:** The Figure 1 diagram is an embedded object in the HCA Report.wpd file.
- Figure 2:** The info for the figs in Figure 4 comes from Table 7. The data is entered into the appropriate spaces in the worksheet titled New fig2.xls. Be sure to update the data ranges in the graphs to include the new year of data.
- Figures 3-7:** These figures are all found in the file titled New figs 3- 7.xls. New data is entered into the blue areas on the first worksheet. There are notes next to these areas telling where the info for each update is located. The figures update automatically.
- Figures 8-11:** These figures are all found in the file titled New figs 8-11.xls. New data is entered into the blue areas the first worksheet. There are notes next to these areas telling where the info for each update is located. The figures update automatically.





**APPENDIX B**  
**IDENTIFICATION OF COST AND REVENUE ELEMENTS**

EXPENDITURES ON STATE-MAINTAINED SYSTEM

Category	Expenditure
<b>CAPITAL</b>	
Constr-compensation leave	1,806,198.43
Constr-construction	95,878,195.64
Constr-emergency/discretionary fund	15,658,437.11
Constr-federal aid projects	62,740,693.21
Constr-industrial access	2,792,821.36
Constr-insurance clearing	454,008.25
Constr-regular leave overlay	865,987.19
Constr-special projects	46,526.00
Constr-specialized contracts	607,217.37
Constr-state bridge replacement	5,456,001.53
Constr-statewide resurfacing	48,007,521.91
Debt svc-econ dev (lease rentals)	130,000.00
Debt svc-general obligation bonds	60,341,361.34
Debt svc-res rec (lease rentals)	76,066,411.26
Debt svc-toll roads (lease rentals)	24,425,534.10
Engr adm-bridges	328,324.42
Engr adm-construction	1,798,674.28
Engr adm-planning	584,134.23
Engr adm-professional services (1/3)	111,070.75
Federal Aid Projects	278,219,746.16
Opns-district legal	110,559.62
Opns-state highway engineer	2,505,175.76
Planning-highway planning	658,206.57
Planning-highway planning (fed)	2,637,088.59
Planning-metropolitan planning	72,412.67
Planning-metropolitan planning (fed)	990,283.10
Planning-transportation planning	137,977.22
Research-research	671,988.20
Research-research (fed)	976,606.97
RS-rural secondary (bridge replace)	1,449.18
RS-rural secondary (construction)	56,377,627.09
RS-rural secondary (jt local proj)	241,679.08
RS-rural secondary (phase II bridge)	48,345.04
Special programs (fed)	1,930,449.58
Transfers to capital construction	6,146,000.00
Subtotal	749,824,713.21
<b>MAINTENANCE AND TRAFFIC SERVICES</b>	
Adm svcs-central sign shop	-156,081.53
Constr-toll road 4-R	19,321,155.49

Engr adm-professional services (1/3)	111,070.75
Equip svc-depreciation of equipment	-5,100,654.57
Equip svc-equipment	25,932,262.18
Equip svc-est equipment earnings	-29,564,123.54
Equip svc-garage machinery & equip	116,619.38
Equip svc-new mn and const equipment	4,654,256.60
ER-energy recovery	1,227,699.91
Fiscal mgmt-toll facilities	5,516,724.90
Maintenance (fed)	1,185,000.00
Maintenance capital improvements	178,058.92
Mn-bridge maintenance	8,730,914.37
Mn-maintenance	111,007,846.11
Mn-maintenance revolving	111,809.88
Mn-traffic	27,550,148.60
Rest area maintenance	7,511,177.91
RS-rural secondary (maintenance)	35,558,273.11
Subtotal	213,892,158.47

#### ADMINISTRATION

Adm svcs-adm support earnings	-662,100.00
Adm svcs-data processing	20,892,596.32
Adm svcs-disposal of excess land	27,625.28
Adm svcs-employee safety & health	915,918.27
Adm svcs-management svcs	1,580,260.20
Adm svcs-office & engr equipment	726,428.00
Adm svcs-office of commissioner	333,490.91
Adm svcs-purchases	438,064.11
Adm svcs-real property (KB13)	6,517,196.94
Adm svcs-real property construction	3,108.00
Adm svcs-service & supply	3,338,134.22
ANOC-American Trucking Association	15,900,000.00
ANOC-Miscellaneous Settlement	111,601.18
ANOC-Paschall Inc.	1,580,100.00
ANOC-Thomas Heavy Hauling	804,566.43
ANOC-Thornton Oil and Kocolene	8,221,559.39
Capital projects (cap proj fund)	4,352,447.75
Engr adm-design	2,225,482.04
Engr adm-environmental analysis	172,140.44
Engr adm-materials	-320,039.51
Engr adm-professional services (1/3)	111,070.75
Engr adm-right of way	309,785.38
Engr adm-utilities	74,384.32
Fin cab-inform. resources mgmt comm.	125,000.00

Fin cab-postal services	235,659.25
Fiscal mgmt-accounts	1,650,457.55
Fiscal mgmt-audits	1,516,570.41
Fiscal mgmt-office of commissioner	738,222.80
Nonbudget-unredeemed checks	5,178.63
Opns-administration earnings (RS)	-1,199,333.92
Opns-contract procurement	894,254.44
Opns-district operations	13,917,492.20
Opns-office of commissioner	350,367.29
Planning-district overhead planning	77,788.86
RS-rural secondary (adm)	2,536,033.43
Sec-administrative support earnings	-566,110.88
Sec-board of claims	746,417.61
Sec-environmental affairs	423,107.52
Sec-general counsel	1,611,637.65
Sec-office of minority affairs	560,715.55
Sec-Office of the Secretary	1,301,966.81
Sec-personnel management	990,944.37
Sec-policy and budget	368,411.25
Sec-public relations	234,080.07
Sec-unemployment insurance	283,206.60
Sec-workmen's compensation	3,864,052.28
Veh reg-commercial drivers' licenses	1,267,676.00
Veh reg-office of commissioner	630,947.59
Veh reg-office of commissioner (fed)	293,037.32
Veh reg-solid waste transport licenses	52,291.31
Subtotal	100,563,892.41
ENFORCEMENT, MOTOR CARRIER	
Veh reg-mtr carriers	1,490,435.87
Veh reg-vehicle enforcement	8,940,179.43
Veh reg-vehicle enforcement (fed)	14,051.02
Veh reg-mtr carrier sfty asst	1,446,798.89
Veh reg-mtr carrier sfty asst (fed)	1,560,550.59
Subtotal	13,452,015.80
ENFORCEMENT, OTHER	
Justice cab-state police operations	40,406,800.00
Revenue cab-fuels tax compliance	1,027,439.98
Revenue cab-usage tax compliance	38,188.00
Veh reg-driver education	301,251.51
Veh reg-driver history record (DUI)	126,210.29
Veh reg-driver's license	2,598,538.99

Veh reg-hearings	10,306.00
Veh reg-motor vehicle licensing	2,762,815.34
Veh reg-motorcycle rider ed pgm	376,074.49
Veh reg-photo license	1,106,525.21
Veh reg-traffic offender's school	640,415.90
Veh reg-vehicle titling	1,839,539.32
Subtotal	51,234,105.03

EXCLUDED EXPENDITURES (NON-USER OR OFF-SYSTEM)

Constr-other economic development	8,160.49
Constr-resource recovery (Series A)	-67,748.97
Constr-resource recovery (RR27)	1,135,150.92
MA-municipal aid	31,828,999.71
Nonbudget-pay prior yr disbursements	9,804,088.11
Planning-ADD financial assistance	600,473.81
Research-transportation center	290,000.00
Rev shr-county road aid (coop)	66,608,631.00
Rev shr-county road aid (counties)	1,299,387.74
Revenue cab-property tax assessment	286,100.00
Subtotal	111,793,242.81

## REVENUE ATTRIBUTED TO STATE-MAINTAINED SYSTEM

Category	Revenue
<b>FUEL, KENTUCKY, HEAVY VEHICLE</b>	
Heavy vehicle fuel surtax	2,008,136.08
Subtotal	2,008,136.08
<b>FUEL, KENTUCKY, CARRIER SURTAX</b>	
Motor fuels surtax 22.2%	4,331,623.76
Motor fuels surtax 51.8%	10,107,122.10
Subtotal	14,438,745.86
<b>FUEL, KENTUCKY, NORMAL</b>	
Motor fuels normal 22.2%	86,732,810.49
Motor fuels normal 51.8%	202,376,557.82
Motor fuels normal use 22.2%	-1,377,122.15
Motor fuels normal use 51.8%	-3,213,285.02
Subtotal	284,518,961.14
<b>VEHICLE REGISTRATION AND LICENSE FEES, BUSES</b>	
Bus certificates and permits	2,180.00
Bus-except city & suburban	28,328.07
Subtotal	30,508.07
<b>VEHICLE REGISTRATION AND LICENSE FEES, CARS</b>	
Amateur radio plates	9,778.16
Army reserve license plates	8,398.34
Civic event license plates	655.00
Civil air patrol license	538.00
Collegiate license plates	98,077.88
Contract taxicab permits	10,714.00
Dealer demonstrator tags	7,471.95
DES license plates	7,802.46
Environmental license plates	248,886.10
Fraternal order of police plates	42,331.54
General Assembly license plates	1,754.44
Historic vehicle license	97,002.20
Judicial license plates	809.24
Masonic license plates	30,624.80
National Guard license plates	9,632.86
Passenger car license	23,276,395.42
Personalized license plates	382,968.00
POW license plates	320.22
Purple heart recipient plates	25,902.78

Street rod plates	1,651.04
Taxi license	20,896.91
Volunteer fireman license plates	32,298.22
Subtotal	24,314,909.56

VEHICLE REGISTRATION AND LICENSE FEES, MOTORCYCLES

Motorcycle license	187,644.94
Motorcycle rider safety (KRS186.890)	311,414.66
Subtotal	499,059.60

VEHICLE REGISTRATION AND LICENSE FEES, KENTUCKY TRUCKS

Truck license (70%)	18,848,433.13
Subtotal	18,848,433.13

VEHICLE REGISTRATION AND LICENSE FEES, APPORTIONED TRUCKS

Proportionate trk registration (70%)	23,613,769.86
Subtotal	23,613,769.86

VEHICLE REGISTRATION AND LICENSE FEES, TRUCK ID CARDS

Motor carrier ID cards	268,842.65
ICC authorized fees	5,445,071.43
Subtotal	5,713,914.08

VEHICLE REGISTRATION AND LICENSE FEES, TRUCK PERMITS

Highway special permits	5,982,691.34
Industrial hauling permits	2,322.50
Non-reciprocal permits	298,445.00
Truck permits	36,887.50
Truck trip permits	492,400.00
U-Drive-It permits	12,327.45
Waste transport permits	82,771.84
Subtotal	6,907,845.63

VEHICLE REGISTRATION AND LICENSE FEES, OTHER

County clerks penalty	65,066.46
Dealer license	285,775.02
Drive away & utility trailer	7,632.50
Motor vehicle title receipts	3,201,835.90
Temporary tags	389,357.00
Trailer license	1,147,666.95
Transfer motor license	556,703.96
U-Drive-It license	2,700,660.09
Subtotal	8,354,697.88

MISCELLANEOUS

Highway miscellaneous receipts	347,451.55
Interest earned on investments	31,875,589.10
Logo receipts	510,866.15
Miscellaneous rentals	330,075.15
Opn transfer from cap constr	725,498.26
Other financing source	2,786.85
Proceeds from asset distribution	633,373.16
Property damages & loss claims	483,420.57
Proposal sales	64,848.12
Sale of hwy equip (agency fund)	730,684.91
Specification and blue print	170,566.83
State and other agency aid	1,241,714.35
Subtotal	37,116,875.00

OPERATOR'S LICENSE FEES

Driver's lic-driver education	369,628.95
Driver's lic. photograph	1,116,949.50
Motor vehicle operator's license	3,338,748.75
Operator's license reinstatement	196,868.50
Traffic offender school	1,255,821.62
Subtotal	6,278,017.32

COMMERCIAL DRIVER'S LICENSE

Commercial driver's license	1,118,586.00
Subtotal	1,118,586.00

USAGE TAXES, KENTUCKY BUSES

Usage tax on buses	55,133.28
Subtotal	55,133.28

USAGE TAXES, OTHER KENTUCKY VEHICLES

Motor vehicle rental usage	36,593,748.01
Motor vehicle usage	304,868,490.85
Sales and use tax	234.33
U-Drive-It penalty & int	72,689.60
Subtotal	341,535,162.79

ROAD TOLLS

Audubon Parkway	1,305,641.41
Cumberland Parkway	3,998,136.71
Daniel Boone Parkway	3,114,511.04



Green River Parkway	4,167,671.51
Toll credit card fees	67,820.50
Subtotal	12,653,781.17

OTHER MOTOR CARRIER TAXES, KENTUCKY WEIGHT-DISTANCE

Weight distance int & penalty	1,109,792.59
Weight distance surtax	37,163.99
Weight distance tax	63,024,329.71
Subtotal	64,171,286.29

OTHER MOTOR CARRIER TAXES, KENTUCKY EXTENDED-WEIGHT

Coal road recovery fines (60%)	19,496.10
Overweight coal truck decal (60%)	491,115.00
Subtotal	510,611.10

FEDERAL AID

Federal Aid Motor Carrier Safety	417,589.26
FHWA Aid	283,099,617.54
Special Projects-Federal Road Aid	1,444,585.67
Subtotal	284,961,792.47

EXCLUDED REVENUE (NON-USER OR OFF-SYSTEM FUNDS)

Driver history record fees	4,299,585.79
DUI service fees	132,184.95
Economic development (1986, 1987A)	12,973.10
Fines and forfeitures	16,991.34
Junk yard license	3,475.31
Medical alert stickers	674.00
Motor fuels normal 18.3%	71,495,965.41
Motor fuels normal 7.7%	30,083,001.84
Motor fuels normal use 18.3%	-1,135,195.29
Motor fuels normal use 7.7%	-477,650.48
Motor fuels surtax 18.3%	3,570,662.83
Motor fuels surtax 7.7%	1,502,410.04
Motor Vehicle Commission receipts	787,823.85
MV license computer service	420,259.59
Operator's license name sales	35,085.47
Resource recovery (1981, 1985, 1987A)	1,243,568.13
Subtotal	111,991,815.88



APPENDIX C  
FY 1997 COST ALLOCATION TABLES



TABLE C1. Summary of Expenditures on State-Maintained System

Activity	Expenditure (\$1000)	
Capital		
Resurfacing	96,883	
Other	652,941	
Subtotal		749,825
Maintenance and Traffic		
Roads	177,611	
Structures	8,731	
Traffic Services	27,550	
Subtotal		213,892
Administration		100,564
Enforcement		
Motor Carriers	13,452	
Other Enforcement	51,234	
Subtotal		64,686
Miscellaneous		0
<b>Total</b>		<b>1,128,967</b>

TABLE C2. Highway System Mileage and Vehicle-Miles Traveled

Functional class	Rural or Urban	Number of lanes	Mileage	Vehicle-miles traveled (1000)	Annual average daily traffic
Interstate	Rural	4	503.88	4,878,114	26,524
		6	39.51	653,971	45,348
Principal arterial	Rural	2	1,096.61	2,214,094	5,532
		4	903.20	3,206,476	9,726
Minor arterial	Rural	2	1,540.42	2,117,614	3,766
		4	48.98	169,680	9,492
Major collector	Rural	2	6,889.06	5,226,133	2,078
		4	33.15	103,200	8,528
Minor collector	Rural		9,441.54	2,415,566	701
Local	Rural		4,483.39	812,326	496
Interstate	Urban	4	112.62	1,894,019	46,076
		6	87.00	2,420,210	76,215
		8	19.19	739,702	105,606
Freeway & X-way	Urban	2	3.92	19,069	13,314
		4	87.52	739,554	23,151
Principal arterial	Urban	2	225.46	925,931	11,252
		4	380.35	3,120,287	22,476
		6	11.37	190,551	45,911
Minor arterial	Urban	2	752.91	2,181,990	7,940
		4	152.52	897,901	16,129
		6	3.02	17,733	16,082
Collector	Urban	2	411.33	520,451	3,467
		4	13.57	65,647	13,254
Local	Urban		113.51	84,656	2,043
County maintained	Rural		36,005.77	4,181,271	318
	Urban		3,501.87	878,252	687
City maintained	Rural		1,782.25	223,515	344
	Urban		4,197.71	1,402,808	916
Other	Rural		128.95	41,790	888
	Urban		201.41	128,525	1,748
State-maintained system			27,354.04	35,614,875	3,567,115
Total statewide			73,172.00	42,471,035	1,590,212

TABLE C3. Highway System Mileage and Travel by Terrain

Functional class	Rural or Urban	Number of lanes	Terrain/ facility type	Percent mileage	Mileage	Percent vehicle miles traveled	Vehicle-miles traveled (1000)
Interstate	Rural	4	Flat	9.079	45.75	5.628	274,557
			Rolling	87.605	441.42	91.640	4,470,290
			Mountain	3.316	16.71	2.732	133,267
		6	Flat	0.000	0.00	0.000	0
			Rolling	100.000	39.51	100.000	653,971
			Mountain	0.000	0.00	0.000	0
Principal arterial	Rural	2	Flat	4.353	47.74	5.071	112,274
			Rolling	64.529	707.63	63.595	1,408,045
			Mountain	31.118	341.25	31.334	693,775
		4	Flat	3.903	35.25	4.039	129,496
			Rolling	79.497	718.02	78.668	2,522,477
			Mountain	16.600	149.93	17.293	554,503
Minor arterial	Rural	2	Flat	5.219	80.40	5.298	112,197
			Rolling	84.347	1,299.30	85.663	1,814,012
			Mountain	10.434	160.72	9.039	191,405
		4	Flat	6.041	2.96	6.063	10,288
			Rolling	66.965	32.80	60.850	103,251
			Mountain	26.994	13.22	33.086	56,141
Major collector	Rural	2	Flat	5.790	398.85	7.817	408,512
			Rolling	74.077	5,103.18	74.988	3,918,949
			Mountain	20.134	1,387.03	17.196	898,673
		4	Flat	11.990	3.98	16.798	17,335
			Rolling	87.811	29.11	83.040	85,698
			Mountain	0.199	0.07	0.162	168
Minor collector	Rural		Flat	5.294	499.86	4.907	118,542
			Rolling	82.462	7,785.64	78.666	1,900,230
			Mountain	12.244	1,156.04	16.427	396,793
Local	Rural		Flat	8.190	367.19	8.733	70,939
			Rolling	82.115	3,681.53	79.771	648,002
			Mountain	9.695	434.67	11.496	93,385
Interstate	Urban	4	Freeway	100.000	112.62	100.000	1,894,019
		6	Freeway	100.000	87.00	100.000	2,420,210
		8	Freeway	100.000	19.19	100.000	739,702
Freeway & X-way	Urban	2	Freeway	100.000	3.92	100.000	19,069
		4	Freeway	100.000	87.52	100.000	739,554
Principal arterial	Urban	2	Street	100.000	225.46	100.000	925,931
		4	Street	100.000	380.35	100.000	3,120,287
		6	Street	100.000	11.37	100.000	190,551
Minor arterial	Urban	2	Street	100.000	752.91	100.000	2,181,990
		4	Street	100.000	152.52	100.000	897,901
		6	Street	100.000	3.02	100.000	17,733
Collector	Urban	2	Street	100.000	411.33	100.000	520,451
		4	Street	100.000	13.57	100.000	65,647
Local	Urban		Street	100.000	113.51	100.000	84,656
State-maintained system					27,354.04		35,614,875

TABLE C4. Percent of Traffic Stream by Vehicle Type

Functional Class	Rural or Urban	Number of Lanes	Motor-cycles	Cars	Buses	2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle	7 or more axles	Total
Interstate	Rural	4	0.275	49.804	0.361	21.616	2.756	0.525	0.100	2.186	20.778	0.254	1.175	0.151	0.021	100.000
		6	0.154	44.135	0.237	26.094	3.228	0.632	0.094	0.737	23.016	0.136	1.371	0.162	0.004	100.000
Principal Arterial	Rural	2	0.273	58.982	0.532	30.294	3.056	1.525	0.171	0.841	3.504	0.766	0.049	0.005	0.002	100.000
		4	0.192	54.362	0.294	33.022	2.844	1.013	0.186	1.012	4.965	1.913	0.158	0.024	0.015	100.000
Minor Arterial	Rural	2	0.351	63.835	0.584	27.892	2.739	1.216	0.328	0.814	1.952	0.258	0.020	0.005	0.006	100.000
		4	0.341	60.536	0.794	29.980	2.457	1.239	0.208	0.722	2.615	1.069	0.036	0.002	0.001	100.000
Major Collector	Rural	2	0.218	65.176	0.586	27.919	2.490	0.885	0.164	0.512	1.870	0.148	0.016	0.005	0.011	100.000
		4	0.278	67.551	0.278	24.726	2.181	0.701	0.139	1.769	2.223	0.054	0.069	0.031		100.000
Minor Collector	Rural		0.244	56.958	0.606	34.293	2.554	2.296	0.052	0.156	1.452	1.384	0.005			100.000
Local	Rural		0.296	78.558	0.268	18.898	1.288	0.336	0.036	0.213	0.012	0.032			0.063	100.000
Interstate	Urban	4	0.137	58.095	0.302	26.584	2.581	0.544	0.153	0.916	9.975	0.083	0.569	0.050	0.012	100.000
		6	0.143	62.226	0.254	25.417	2.376	0.555	0.165	0.509	7.856	0.069	0.380	0.041	0.012	100.000
		8	0.111	61.118	0.225	25.805	2.359	0.641	0.091	0.682	8.348	0.061	0.465	0.066	0.029	100.000
Freeway & X-way	Urban	2	0.083	58.644	0.351	35.501	3.648	0.730	0.157	0.175	0.683	0.028				100.000
		4	0.237	67.079	0.371	26.696	1.758	0.569	0.093	0.479	2.263	0.163	0.090	0.012	0.190	100.000
Principal Arterial	Urban	2	0.162	68.051	0.697	27.287	2.024	0.493	0.118	0.313	0.772	0.064	0.009	0.003	0.007	100.000
		4	0.109	64.069	0.454	30.732	2.023	0.472	0.139	0.299	1.568	0.094	0.035	0.004	0.002	100.000
		6	0.036	68.789	0.398	27.881	1.560	0.221	0.101	0.206	0.781	0.002	0.022	0.003		100.000
Minor Arterial	Urban	2	0.197	68.293	0.420	27.438	1.732	0.600	0.083	0.315	0.856	0.043	0.014	0.003	0.006	100.000
		4	0.123	70.996	0.427	24.942	1.684	0.742	0.214	0.307	0.498	0.054	0.008		0.005	100.000
		6	0.034	74.235	0.140	24.091	1.171	0.106	0.026	0.085	0.112					100.000
Collector	Urban	2	0.172	73.104	0.374	23.169	1.926	0.487	0.059	0.356	0.344	0.009				100.000
		4	0.038	68.558	0.368	27.220	2.274	0.213	0.008	0.284	1.020	0.017				100.000
Local	Urban			56.553	4.545	38.076	0.590	0.236								100.000
County Maintained	Rural		0.155	60.954	0.348	34.801	2.664	0.569	0.212	0.198	0.071	0.009			0.019	100.000
		Urban		56.553	4.545	38.076	0.590	0.236								
City Maintained	Rural		0.155	60.954	0.348	34.801	2.664	0.569	0.212	0.198	0.071	0.009			0.019	100.000
		Urban		56.553	4.545	38.076	0.590	0.236								
Other	Rural		0.155	60.954	0.348	34.801	2.664	0.569	0.212	0.198	0.071	0.009			0.019	100.000
		Urban		56.553	4.545	38.076	0.590	0.236								



TABLE C5. Distribution of Vehicle-Miles Traveled (1000)

Functional Class	Rural/ Urban	Number of Lanes	Motor- cycles	Single-unit Trucks					Single Trailer			Multiple Trailer			Total	
				Cars	Buses	2-axle	2-axle	3-axle	4 or	4 or	5-axle	6 or	5 or	7 or		
						4-tire	6-tire		more	less		more	less	more		
Interstate	Rural	4	13,398	2,429,481	17,616	1,054,455	134,420	25,603	4,854	106,631	1,013,550	12,406	57,307	7,345	1,048	4,878,114
		6	1,005	288,632	1,551	170,649	21,109	4,131	617	4,820	150,519	889	8,966	1,056	25	653,971
Principal Arterial	Rural	2	6,044	1,305,917	11,779	670,738	67,663	33,765	3,786	18,621	77,582	16,960	1,085	111	44	2,214,094
		4	6,156	1,743,105	9,427	1,058,843	91,192	32,482	5,964	32,450	159,202	61,340	5,066	770	481	3,206,476
Minor Arterial	Rural	2	7,433	1,351,779	12,367	590,645	58,001	25,750	6,946	17,237	41,336	5,463	424	106	127	2,117,614
		4	579	102,717	1,347	50,870	4,169	2,102	353	1,225	4,437	1,814	61	3	2	169,680
Major Collector	Rural	2	11,393	3,406,184	30,625	1,459,084	130,131	46,251	8,571	26,758	97,729	7,735	836	261	575	5,226,133
		4	287	69,713	287	25,517	2,251	723	143	1,826	2,294	56	71	32		103,200
Minor Collector	Rural		5,894	1,375,858	14,638	828,370	61,694	55,461	1,256	3,768	35,074	33,431	121		2,415,566	
Local	Rural		2,404	638,147	2,177	153,513	10,463	2,729	292	1,730	97	260			512	812,326
Interstate	Urban	4	2,601	1,100,322	5,717	503,502	48,879	10,296	2,902	17,355	188,936	1,570	10,780	943	218	1,894,019
		6	3,449	1,505,991	6,142	615,147	57,496	13,421	3,995	12,327	190,120	1,658	9,195	984	285	2,420,210
		8	819	452,092	1,661	190,878	17,450	4,744	674	5,043	61,747	454	3,437	486	217	739,702
Freeway & X-way	Urban	2	16	11,183	67	6,770	696	139	30	33	130	5				19,069
		4	1,753	496,086	2,744	197,431	13,001	4,208	688	3,542	16,736	1,205	666	89	1,405	739,554
Principal Arterial	Urban	2	1,500	630,105	6,454	252,659	18,741	4,565	1,093	2,898	7,148	593	83	28	65	925,931
		4	3,401	1,999,137	14,166	958,927	63,123	14,728	4,337	9,330	48,926	2,933	1,092	125	62	3,120,287
		6	69	131,078	758	53,128	2,973	421	192	393	1,488	4	42	6		190,551
Minor Arterial	Urban	2	4,299	1,490,146	9,164	598,694	37,792	13,092	1,811	6,873	18,678	938	305	65	131	2,181,990
		4	1,104	637,474	3,834	223,955	15,121	6,662	1,922	2,757	4,472	485	72		45	897,901
		6	6	13,164	25	4,272	208	19	5	15	20					17,733
Collector	Urban	2	895	380,471	1,946	120,583	10,024	2,535	307	1,853	1,790	47				520,451
		4	25	45,006	242	17,869	1,493	140	5	186	670	11				65,647
Local	Urban			47,875	3,848	32,233	499	200								84,656
County Maintained	Rural		6,481	2,548,652	14,551	1,455,124	111,389	23,791	8,864	8,279	2,969	376			794	4,181,271
		Urban		496,678	39,917	334,403	5,182	2,073								
City Maintained	Rural		346	136,241	778	77,785	5,954	1,272	474	443	159	20			42	223,515
		Urban		793,330	63,758	534,133	8,277	3,311								
Other	Rural		65	25,472	145	14,543	1,113	238	89	83	30	4			8	41,790
		Urban		72,685	5,841	48,937	758	303								
State-maintained System			74,531	21,651,662	158,582	9,838,731	868,588	304,168	50,744	277,671	2,122,681	150,257	99,608	12,411	5,242	35,614,875
Total Statewide			81,423	25,724,720	283,572	12,303,657	1,001,261	335,155	60,171	286,475	2,125,838	150,657	99,608	12,411	6,087	42,471,035
State-maintained Percent			0.209	60.794	0.445	27.625	2.439	0.854	0.142	0.780	5.960	0.422	0.280	0.035	0.015	100.000
Statewide Percent			0.192	60.570	0.668	28.970	2.358	0.789	0.142	0.675	5.005	0.355	0.235	0.029	0.014	100.000

TABLE C6. Distribution of Axle-Miles Traveled (1000)

Functional Class	Rural/ Urban	Number of Lanes	Motor- cycles	Single-unit Trucks					Single Trailer		Multiple Trailer			Total		
				Cars	Buses	2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles		6-axle	7 or more axles
Interstate	Rural	4	26,797	4,858,961	35,233	2,108,909	268,840	76,808	19,416	426,524	5,067,751	74,435	286,534	44,073	7,339	13,301,619
		6	2,011	577,265	3,103	341,299	42,219	12,392	2,469	19,282	752,593	5,333	44,829	6,338	174	1,809,306
Principal Arterial	Rural	2	12,089	2,611,834	23,558	1,341,475	135,325	101,295	15,144	74,482	387,909	101,760	5,425	664	310	4,811,271
		4	12,313	3,486,209	18,854	2,117,685	182,384	97,445	23,856	129,798	796,008	368,039	25,331	4,617	3,367	7,265,907
Minor Arterial	Rural	2	14,866	2,703,558	24,734	1,181,290	116,003	77,251	27,783	68,950	206,679	32,781	2,118	635	889	4,457,535
		4	1,157	205,435	2,695	101,740	8,338	6,307	1,412	4,900	22,186	10,883	305	20	12	365,390
Major Collector	Rural	2	22,786	6,812,369	61,250	2,918,168	260,261	138,754	34,283	107,031	488,643	46,408	4,181	1,568	4,024	10,899,727
		4	574	139,426	574	51,035	4,502	2,170	574	7,302	11,471	334	356	192		218,509
Minor Collector	Rural		11,788	2,751,716	29,277	1,656,740	123,387	166,384	5,024	15,073	175,370	200,589	604			5,135,951
Local	Rural		4,809	1,276,294	4,354	307,027	20,926	8,188	1,170	6,921	487	1,560			3,582	1,635,318
Interstate	Urban	4	5,201	2,200,643	11,433	1,007,003	97,757	30,889	11,607	69,421	944,680	9,419	53,898	5,658	1,525	4,449,137
		6	6,899	3,011,982	12,284	1,230,294	114,993	40,263	15,982	49,306	950,600	9,949	45,975	5,907	1,994	5,496,425
		8	1,638	904,184	3,322	381,757	34,900	14,231	2,697	20,171	308,735	2,725	17,183	2,919	1,519	1,695,978
Freeway & X-way	Urban	2	32	22,365	134	13,539	1,391	418	120	133	651	32				38,815
		4	3,505	992,171	5,487	394,863	26,003	12,624	2,751	14,170	83,681	7,233	3,328	532	9,836	1,556,185
Principal Arterial	Urban	2	3,000	1,260,210	12,907	505,317	37,482	13,695	4,370	11,593	35,741	3,556	417	167	454	1,888,908
		4	6,802	3,998,274	28,332	1,917,854	126,247	44,183	17,349	37,319	244,631	17,598	5,461	749	437	6,445,235
		6	137	262,157	1,517	106,255	5,945	1,263	770	1,570	7,441	23	210	34		387,322
Minor Arterial	Urban	2	8,597	2,980,293	18,329	1,197,389	75,584	39,276	7,244	27,493	93,389	5,630	1,527	393	916	4,456,060
		4	2,209	1,274,948	7,668	447,909	30,241	19,987	7,686	11,026	22,358	2,909	359		314	1,827,615
		6	12	26,328	50	8,544	415	56	18	60	99					35,583
Collector	Urban	2	1,790	760,941	3,893	241,167	20,048	7,604	1,228	7,411	8,952	281				1,053,315
		4	50	90,012	483	35,738	2,986	419	21	746	3,348	67				133,871
Local	Urban			95,751	7,695	64,467	999	599								169,511
County Maintained	Rural		12,962	5,097,303	29,102	2,910,248	222,778	71,374	35,457	33,116	14,844	2,258			5,561	8,435,003
				993,355	79,833	668,806	10,363	6,218								
City Maintained	Rural		693	272,482	1,556	155,571	11,909	3,815	1,895	1,770	793	121			297	450,903
				1,586,660	127,515	1,068,266	16,553	9,932								
Other	Rural		130	50,945	291	29,086	2,227	713	354	331	148	23			56	84,303
				145,370	11,683	97,875	1,517	910								
State-maintained System			149,061	43,303,324	317,165	19,677,463	1,737,175	912,503	202,975	1,110,684	10,613,403	901,543	498,038	74,465	36,692	79,534,493
Total Statewide			162,846	51,449,440	567,144	24,607,315	2,002,522	1,005,466	240,682	1,145,901	10,629,189	903,944	498,038	74,465	42,606	93,329,559
State-maintained Percent			0.187	54.446	0.399	24.741	2.184	1.147	0.255	1.396	13.344	1.134	0.626	0.094	0.046	100.000
Statewide Percent			0.174	55.127	0.608	26.366	2.146	1.077	0.258	1.228	11.389	0.969	0.534	0.080	0.046	100.000

TABLE C7. Passenger Car Equivalents as a Function of Registered Weight

Registered weight (pounds)	Rural flat	Rural rolling	Rural mountain	Urban freeway	Urban street
6,000	1.00	1.00	1.00	1.00	1.00
10,000	1.05	1.15	1.40	1.05	1.05
14,000	1.10	1.30	1.80	1.10	1.10
18,000	1.15	1.50	2.20	1.15	1.15
22,000	1.20	1.65	2.50	1.20	1.20
26,000	1.25	1.80	2.80	1.25	1.25
32,000	1.35	2.05	3.40	1.35	1.35
38,000	1.40	2.30	3.95	1.40	1.40
44,000	1.50	2.50	4.50	1.50	1.50
55,000	1.65	2.95	5.50	1.65	1.65
59,999	1.70	3.15	5.95	1.70	1.70
62,000	1.75	3.25	6.15	1.75	1.75
73,280	1.90	3.70	7.20	1.90	1.90
80,000	2.00	4.00	8.00	2.00	2.00

TABLE C8. Passenger Car Equivalents as a Function of Vehicle Type

Terrain	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers				
				2-axle	2-axle	3-axle	4 or	4 or	6 or	5 or	6-axle	7 or	
				4-tire	6-tire		more	less	5-axle	more	less	more	more
						axles	axles	axles	axles	axles	axles	axles	
Rural flat	0.50	1.00	1.50	1.00	1.29	1.72	1.84	1.81	1.98	1.99	1.94	2.00	2.00
Rural rolling	0.50	1.00	3.00	1.00	1.91	3.16	3.52	3.43	3.95	3.97	3.82	4.00	4.00
Rural mountain	0.50	1.00	4.00	1.00	3.09	6.00	6.81	6.64	7.87	7.92	7.55	8.00	8.00
Urban freeway	0.50	1.00	1.50	1.00	1.29	1.72	1.84	1.81	1.98	1.99	1.94	2.00	2.00
Urban street	0.50	1.00	1.50	1.00	1.29	1.72	1.84	1.81	1.98	1.99	1.94	2.00	2.00

TABLE C9. Distribution of Passenger-Car-Equivalent-Miles Traveled (1000)

Functional class	Rural or urban	Number of lanes	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer			Multiple trailers			Total	
						2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle		7 or more axles
Interstate	Rural	4	6,699	2,429,481	51,034	1,054,455	254,169	79,950	16,875	361,541	3,949,642	48,618	216,208	29,022	4,142	8,501,837
		6	503	288,632	4,654	170,649	40,268	13,051	2,173	16,541	593,803	3,527	34,249	4,225	99	1,172,375
Principal arterial	Rural	2	3,022	1,305,917	38,233	670,738	152,233	134,412	16,931	81,184	394,128	86,700	5,313	571	228	2,889,611
		4	3,078	1,743,105	29,294	1,058,843	189,717	116,115	23,863	126,588	719,513	278,898	22,114	3,529	2,206	4,316,863
Minor arterial	Rural	2	3,716	1,351,779	37,423	590,645	115,953	87,052	26,227	63,464	175,753	23,366	1,741	457	548	2,478,123
		4	289	102,717	4,283	50,870	9,132	8,071	1,520	5,145	21,676	8,916	288	17	8	212,935
Major collector	Rural	2	5,696	3,406,184	95,382	1,459,084	274,666	168,725	35,020	106,601	451,613	35,960	3,730	1,225	2,696	6,046,583
		4	143	69,713	810	25,517	4,132	2,165	477	5,921	8,528	208	256	121		117,992
Minor collector	Rural		2,947	1,375,858	44,545	828,370	124,630	190,287	4,816	14,088	151,567	145,326	504		2,882,939	
Local	Rural		1,202	638,147	6,475	153,513	20,633	9,053	1,083	6,246	406	1,089		2,162	840,008	
Interstate	Urban	4	1,300	1,100,322	8,575	503,502	63,065	17,678	5,337	31,395	374,388	3,122	20,912	1,886	436	2,131,918
		6	1,725	1,505,991	9,213	615,147	74,184	23,042	7,348	22,298	376,735	3,298	17,838	1,969	570	2,659,357
		8	409	452,092	2,491	190,878	22,514	8,144	1,240	9,122	122,355	903	6,667	973	434	818,224
Freeway & x-way	Urban	2	8	11,183	100	6,770	898	239	55	60	258	11			19,581	
		4	876	496,086	4,116	197,431	16,775	7,225	1,265	6,408	33,164	2,398	1,291	177	2,810	770,022
Principal arterial	Urban	2	750	630,105	9,681	252,659	24,180	7,837	2,009	5,243	14,165	1,179	162	56	130	948,154
		4	1,701	1,999,137	21,249	958,927	81,445	25,286	7,977	16,877	96,950	5,834	2,119	250	125	3,217,874
Minor arterial	Urban	6	34	131,078	1,138	53,128	3,835	723	354	710	2,949	8	81	11		194,050
		2	2,149	1,490,146	13,747	598,694	48,761	22,477	3,331	12,433	37,011	1,866	593	131	262	2,231,602
		4	552	637,474	5,751	223,955	19,509	11,439	3,534	4,986	8,861	964	139		90	917,254
Collector	Urban	6	3	13,164	37	4,272	268	32	8	27	39					17,851
		2	448	380,471	2,920	120,583	12,933	4,352	565	3,352	3,548	93				529,264
		4	12	45,006	362	17,869	1,926	240	10	337	1,327	22				67,112
Local	Urban			47,875	5,771	32,233	644	343							86,868	
State-maintained system			37,265	21,651,662	397,284	9,838,731	1,556,471	937,938	162,019	900,569	7,538,379	652,306	334,207	44,619	16,945	44,068,397
State-maintained percent			0.085	49.132	0.902	22.326	3.532	2.128	0.368	2.044	17.106	1.480	0.758	0.101	0.038	100.000

TABLE C10. Distribution of Equivalent-Single-Axle-Load-Miles Traveled (1000)

Functional class	Rural or urban	Number of lanes	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers			Total		
						2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles		6-axle	7 or more axles
Interstate	Rural	4		7,288	12,190	6,327	44,489	22,850	18,957	70,694	1,076,654	19,803	88,019	7,232	3,417	1,377,920
		6		866	1,073	1,024	6,987	3,687	2,411	3,196	159,890	1,419	13,771	1,040	81	195,444
Principal arterial	Rural	2		3,918	6,027	4,024	23,194	25,893	16,371	13,503	98,108	124,804	1,854	661	264	318,623
		4		5,229	4,824	6,353	31,260	24,909	25,789	23,532	201,323	451,385	8,658	4,598	2,871	790,731
Minor arterial	Rural	2		4,055	6,328	3,544	19,882	19,747	30,034	12,500	52,272	40,204	724	633	758	190,682
		4		308	689	305	1,429	1,612	1,526	888	5,611	13,348	104	20	10	25,852
Major collector	Rural	2		10,219	11,994	8,755	37,099	35,066	35,460	33,359	104,197	22,972	2,027	723	1,725	303,595
		4		209	112	153	642	548	593	2,276	2,446	166	173	88		7,407
Minor collector	Rural			4,128	5,733	4,970	17,588	42,049	5,197	4,698	37,396	99,293	293			221,344
Local	Rural			1,914	853	921	2,983	2,069	1,210	2,157	104	772			1,535	14,519
Interstate	Urban	4		3,301	2,758	3,021	12,430	7,896	10,188	8,787	157,830	3,264	13,843	759	624	224,701
		6		4,518	2,963	3,691	14,622	10,292	14,027	6,241	158,819	3,448	11,808	792	816	232,037
		8		1,356	801	1,145	4,438	3,638	2,367	2,553	51,581	944	4,413	391	622	74,250
Freeway & x-way	Urban	2		34	43	41	194	122	131	18	105	10			698	
		4		1,488	1,753	1,185	3,635	3,678	3,019	1,941	13,513	2,178	848	71	6,142	39,451
Principal arterial	Urban	2		1,890	4,123	1,516	5,240	3,989	4,795	1,588	5,772	1,071	106	22	283	30,396
		4		5,997	9,051	5,754	17,648	12,871	19,036	5,113	39,505	5,299	1,391	100	273	122,038
Minor arterial	Urban	6		393	485	319	831	368	845	215	1,202	7	53	5		4,722
		2		4,470	3,568	3,592	7,852	8,434	6,315	2,036	17,234	1,678	106	119	393	55,799
		4		1,912	1,493	1,344	3,142	4,292	6,700	817	4,126	867	25		135	24,852
Collector	Urban	6		39	10	26	43	12	16	4	18				169	
		2		1,141	758	724	2,083	1,633	1,071	549	1,652	84				9,694
		4		135	94	107	310	90	18	55	618	20				1,448
Local	Urban			144	1,498	193	104	129							2,068	
State-maintained system				64,955	79,221	59,032	258,125	235,873	206,075	196,723	2,189,976	793,034	148,217	17,255	19,950	4,268,436
State-maintained percent				2	2	1	6	6	5	5	51	19	3	0	0	100

Unit ESALs (ESALs/vehicle)

Interstate	Rural	0.0030	0.6919	0.0060	0.3310	0.8925	3.9055	0.6630	1.0623	1.5963	1.5359	0.9846	3.2590
Arterial	Rural	0.0030	0.5117	0.0060	0.3428	0.7669	4.3240	0.7252	1.2646	7.3588	1.7090	5.9752	5.9697
Collector & local	Rural	0.0030	0.3916	0.0060	0.2851	0.7582	4.1373	1.2467	1.0662	2.9701	2.4241	2.7653	3.0000
Interstate	Urban	0.0030	0.4824	0.0060	0.2543	0.7668	3.5108	0.5063	0.8354	2.0792	1.2842	0.8048	2.8657
Major arterial	Urban	0.0030	0.6389	0.0060	0.2796	0.8740	4.3890	0.5481	0.8074	1.8065	1.2738	0.8000	4.3712
Other	Urban	0.0030	0.3894	0.0060	0.2078	0.6443	3.4867	0.2962	0.9227	1.7884	0.3484	1.8153	3.0000

TABLE C11. Cost Allocation Basis in Percent

Activity	Vehicle miles	Axle miles	PCE miles	ESAL miles
<b>Construction</b>				
Planning & design	100			
Right of way	100			
Utility relocation	100			
Grade, drain, & surfacing	15		55	30
Resurfacing	33			67
Bridges			100	
Miscellaneous			100	
<b>Maintenance and traffic</b>				
Roads (80% all, 20% trucks)		100		
Structures			100	
Traffic services	100			
<b>Administration</b>				
	100			
<b>Enforcement</b>				
Motor carriers (100% trucks)	100			
Other enforcement	100			
<b>Miscellaneous</b>				
		100		

TABLE C12. Distribution of Average Construction Expenditures for 1994-1996 in Percent (Source: STARS)

Functional class	Rural or Urban	Number of lanes	Construction element							Total percent
			Planning & design	Right of way	Utility relocation	Grade, drain & surfacing	Resurfacing	Bridges	Miscellaneous	
Interstate	Rural	4	0.303	0.090	0.109	3.064	1.160	0.045	0.137	4.907
		6	0.054	0.009	-0.013	1.069	0.000	0.226	0.250	1.594
Principal arterial	Rural	2	1.165	0.937	0.371	7.645	1.067	0.865	0.002	12.052
		4	0.341	0.376	0.126	6.855	1.464	0.107	0.058	9.328
Minor arterial	Rural	2	1.191	1.145	0.246	3.539	1.081	1.372	0.022	8.596
		4	0.036	0.035	0.050	0.218	0.034	0.002	0.000	0.375
Major collector	Rural	2	1.353	1.545	0.750	7.279	4.188	1.418	0.055	16.588
		4	0.013	0.002	0.000	0.052	0.035	0.011	0.000	0.113
Minor collector	Rural		0.456	0.345	0.108	1.244	0.792	0.666	0.000	3.611
Local	Rural		0.206	0.103	0.181	1.009	0.574	0.238	0.019	2.331
Interstate	Urban	4	0.386	0.088	0.004	5.065	0.011	2.331	0.169	8.054
		6	0.128	0.373	0.017	9.017	0.200	1.135	0.748	11.620
		8	0.006	0.000	0.031	0.002	0.000	0.007	0.000	0.045
Freeway & X-way	Urban	2	0.050	0.000	0.000	0.012	0.000	0.000	0.000	0.062
		4	0.012	0.003	0.002	0.718	0.112	0.060	0.024	0.932
Principal arterial	Urban	2	0.879	0.750	0.267	0.486	0.332	2.418	0.028	5.160
		4	0.588	0.495	0.081	3.447	0.832	0.011	0.095	5.550
		6	0.000	0.013	0.002	0.005	0.047	0.000	0.025	0.092
Minor arterial	Urban	2	0.479	0.797	0.332	3.350	0.546	0.201	0.059	5.765
		4	0.203	0.088	0.034	0.759	0.260	0.040	0.027	1.411
		6	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.002
Collector	Urban	2	0.162	0.061	0.075	1.138	0.093	0.082	0.010	1.622
		4	0.000	0.000	0.003	0.004	0.039	0.000	0.000	0.046
Local	Urban		0.008	0.013	0.021	0.033	0.053	0.003	0.014	0.145
Total percent			8.022	7.269	2.798	56.011	12.921	11.238	1.742	100.000



TABLE C13. Annual Construction Expenditures (\$1000)

Functional class	Rural or Urban	Number of lanes	Construction element							Total	Percent
			Planning & design	Right of way	Utility relocation	Grade, drain & surfacing	Resurfacing	Bridges	Miscellaneous		
Interstate	Rural	4	2,273	677	814	22,972	8,695	336	1,026	36,795	4.907
		6	402	69	-100	8,015		1,695	1,872	11,953	1.594
Principal arterial	Rural	2	8,736	7,024	2,780	57,321	8,004	6,490	12	90,366	12.052
		4	2,560	2,820	941	51,401	10,980	806	432	69,940	9.328
Minor arterial	Rural	2	8,930	8,583	1,846	26,539	8,105	10,286	164	64,454	8.596
		4	269	260	375	1,638	255	14	0	2,810	0.375
Major collector	Rural	2	10,145	11,586	5,626	54,582	31,403	10,631	409	124,383	16.588
		4	101	15	1	386	261	84		848	0.113
Minor collector	Rural		3,420	2,590	809	9,327	5,941	4,990		27,078	3.611
Local	Rural		1,547	773	1,360	7,563	4,305	1,784	146	17,478	2.331
Interstate	Urban	4	2,897	658	31	37,980	85	17,477	1,265	60,392	8.054
		6	961	2,799	131	67,614	1,499	8,510	5,611	87,126	11.620
		8	42		231	12		51		336	0.045
Freeway & X-way	Urban	2	377			90				467	0.062
		4	92	26	17	5,384	842	448	180	6,990	0.932
Principal arterial	Urban	2	6,592	5,627	2,005	3,640	2,488	18,130	207	38,689	5.160
		4	4,411	3,713	610	25,850	6,242	83	709	41,617	5.550
		6	0	95	14	38	351		190	689	0.092
Minor arterial	Urban	2	3,595	5,980	2,488	25,121	4,091	1,509	445	43,227	5.765
		4	1,525	657	255	5,690	1,949	300	205	10,579	1.411
		6				12	2			15	0.002
Collector	Urban	2	1,217	457	561	8,535	696	618	78	12,162	1.622
		4			22	32	290	1	0	345	0.046
Local	Urban		60	96	161	244	398	20	108	1,087	0.145
State-Maintained System			60,151	54,506	20,978	419,985	96,883	84,263	13,058	749,825	100.000
Percent			8.022	7.269	2.798	56.011	12.921	11.238	1.742	100.000	

TABLE C14. Cost Responsibility by Axle Class for Annual Construction Expenditure by Construction Element (\$1000)

Construction element	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers				Total	Percent	
				2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle			7 or more axles
Planning & design	137	38,033	292	16,831	1,443	562	94	382	2,048	229	74	9	17	60,151	8.022
Right of way	123	34,678	286	15,512	1,321	520	92	312	1,416	200	38	5	4	54,506	7.269
Utility relocation	48	13,528	114	5,823	491	191	31	122	536	73	15	2	2	20,978	2.798
Grade, drain, & surfacing	326	162,218	5,933	74,911	20,987	15,521	10,883	10,897	87,240	25,339	4,211	539	982	419,985	56.011
Resurfacing	72	22,129	2,746	10,791	7,484	6,773	6,096	4,717	22,703	11,726	831	177	639	96,883	12.921
Bridges	75	47,093	819	20,496	2,958	1,752	339	1,185	8,435	731	322	36	23	84,263	11.238
Miscellaneous	9	6,572	72	2,861	386	138	35	172	2,603	55	134	16	4	13,058	1.742
State-maintained system	789	324,251	10,261	147,225	35,070	25,457	17,570	17,788	124,981	38,353	5,625	785	1,671	749,825	100.000
Percent	0.105	43.244	1.368	19.635	4.677	3.395	2.343	2.372	16.668	5.115	0.750	0.105	0.223	100.000	

TABLE C15. Cost Responsibility by Axle Class for Annual Construction Expenditure by Functional Class (\$1000)

Functional class	Rural or urban	Number of lanes	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers			Total	Percent		
						2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles			6-axle	7 or more axles
Interstate	Rural	4	39	9,087	233	3,973	1,107	395	213	1,468	18,534	288	1,287	130	41	36,795	4.907
		6	6	2,669	49	1,584	411	144	46	163	6,368	44	424	44	2	11,953	1.594
Principal arterial	Rural	2	121	35,028	1,088	18,133	4,556	4,056	1,433	2,275	13,176	10,205	216	56	22	90,366	12.052
		4	55	21,663	391	13,251	2,699	1,690	939	1,722	11,594	15,246	428	161	100	69,940	9.328
Minor arterial	Rural	2	129	30,554	975	13,475	3,281	2,583	2,460	1,731	5,955	3,127	74	50	60	64,454	8.596
		4	5	1,196	46	596	106	91	48	54	269	393	4	1	0	2,810	0.375
Major collector	Rural	2	139	54,310	2,395	23,804	7,580	5,874	4,683	5,070	16,766	3,143	282	100	236	124,383	16.588
		4	1	360	7	135	41	29	25	109	123	7	8	4	0	848	0.113
Minor collector	Rural		35	10,754	394	6,551	1,236	2,189	181	209	1,825	3,692	11	0	0	27,078	3.611
Local	Rural		27	10,204	366	2,618	1,289	821	440	824	41	284	0	0	565	17,478	2.331
Interstate	Urban	4	37	26,031	328	11,989	2,046	782	633	1,117	15,932	232	1,147	78	41	60,392	8.054
		6	54	38,511	486	15,900	3,118	1,469	1,453	1,077	22,981	390	1,483	117	88	87,126	11.620
		8	0	200	1	84	8	3	0	3	34	0	2	0	0	336	0.045
Freeway & x-way	Urban	2	0	268	3	121	19	8	6	3	36	1	2	0	0	467	0.062
		4	7	3,206	121	1,320	302	244	174	143	927	133	54	5	355	6,990	0.932
Principal arterial	Urban	2	46	24,234	669	9,773	1,292	612	495	316	1,046	139	20	4	42	38,689	5.160
		4	26	19,486	1,062	9,392	2,403	1,447	1,919	623	4,511	558	150	11	28	41,617	5.550
Minor arterial	Urban	6	0	322	27	139	51	21	45	12	68	0	3	0	0	689	0.092
		2	43	23,104	826	9,622	2,082	1,802	1,201	513	3,580	328	26	23	75	43,227	5.765
		4	8	5,508	220	2,069	525	593	833	131	560	111	4	0	17	10,579	1.411
Collector	Urban	6	0	8	0	3	1	0	1	0	1	0	0	0	0	15	0.002
		2	9	6,983	278	2,333	845	568	342	216	562	27	0	0	0	12,162	1.622
Local	Urban	4	0	116	14	54	47	13	3	8	89	3	0	0	0	345	0.046
			0	450	283	307	23	23	0	0	1	0	0	0	0	1,087	0.145
State-maintained system			789	324,251	10,261	147,225	35,070	25,457	17,570	17,788	124,981	38,353	5,625	785	1,671	749,825	100.000
Percent			0.105	43.244	1.368	19.635	4.677	3.395	2.343	2.372	16.668	5.115	0.750	0.105	0.223	100.000	

TABLE C16. Cost Responsibility by Axle Class for Annual Maintenance and Administration Expenditure by Expenditure Category (\$1000)

Element	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers				Total	Percent	
				2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6- axle			7 or more axles
<b>Maintenance &amp; traffic</b>															
Roads	266	77,362	567	35,154	6,939	3,645	811	4,437	42,396	3,601	1,989	297	147	177,611	46.846
Structures	7	4,290	79	1,949	308	186	32	178	1,494	129	66	9	3	8,731	2.303
Traffic services	58	16,749	123	7,611	672	235	39	215	1,642	116	77	10	4	27,550	7.266
Administration	210	61,137	448	27,781	2,453	859	143	784	5,994	424	281	35	15	100,564	26.524
<b>Enforcement</b>															
Motor carriers					3,003	1,051	175	960	7,338	519	344	43	18	13,452	3.548
Other enforcement	107	31,147	228	14,154	1,250	438	73	399	3,054	216	143	18	8	51,234	13.513
<b>Miscellaneous</b>															
State-maintained system	649	190,684	1,444	86,649	14,624	6,414	1,274	6,973	61,917	5,007	2,902	412	194	379,142	100.000
Percent	0.171	50.294	0.381	22.854	3.857	1.692	0.336	1.839	16.331	1.321	0.765	0.109	0.051	100.000	

TABLE C17. Cost Responsibility by Axle Class for Annual Maintenance and Administration Expenditure by Functional Class (\$1000)

Functional class	Rural or urban	Number of lanes	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers			Total	Percent		
						2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles			6-axle	7 or more axles
Interstate	Rural	4	117	21,396	162	9,286	2,266	540	122	2,681	29,634	412	1,674	244	39	68,574	18.086
		6	9	2,542	14	1,503	356	87	16	121	4,402	30	262	35	1	9,378	2.473
Principal arterial	Rural	2	53	11,501	109	5,907	1,145	718	96	472	2,286	568	32	4	2	22,892	6.038
		4	54	15,351	87	9,325	1,541	688	151	819	4,674	2,046	149	26	18	34,928	9.212
Minor arterial	Rural	2	65	11,905	114	5,202	979	545	175	434	1,211	182	12	4	5	20,832	5.495
		4	5	905	12	448	71	45	9	31	131	61	2	0	0	1,718	0.453
Major collector	Rural	2	99	29,998	283	12,850	2,199	980	217	676	2,871	258	25	9	21	50,486	13.316
		4	2	614	3	225	38	15	4	46	67	2	2	1		1,018	0.269
Minor collector	Rural		51	12,117	135	7,295	1,042	1,173	32	95	1,028	1,114	4			24,086	6.353
Local	Rural		21	5,620	20	1,352	177	58	7	44	3	9			19	7,329	1.933
Interstate	Urban	4	23	9,690	51	4,434	818	214	72	431	5,452	52	311	31	8	21,588	5.694
		6	30	13,263	55	5,418	962	279	99	306	5,487	54	265	32	10	26,261	6.927
		8	7	3,982	15	1,681	292	99	17	125	1,782	15	99	16	8	8,137	2.146
Freeway & x-way	Urban	2	0	98	1	60	12	3	1	1	4	0				179	0.047
		4	15	4,369	24	1,739	218	88	17	88	483	40	19	3	52	7,154	1.887
Principal arterial	Urban	2	13	5,549	57	2,225	314	95	27	72	206	19	2	1	2	8,584	2.264
		4	30	17,606	126	8,445	1,057	307	108	232	1,412	96	32	4	2	29,456	7.769
Minor arterial	Urban	6	1	1,154	7	468	50	9	5	10	43	0	1	0		1,747	0.461
		2	37	13,124	82	5,273	633	273	45	171	539	31	9	2	5	20,222	5.334
		4	10	5,614	34	1,972	253	139	48	68	129	16	2		2	8,287	2.186
Collector	Urban	6	0	116	0	38	3	0	0	0	1					159	0.042
		2	8	3,351	17	1,062	168	53	8	46	52	2				4,765	1.257
Local	Urban	4	0	396	2	157	25	3	0	5	19	0				608	0.160
				422	34	284	8	4									752
State-maintained system			649	190,684	1,444	86,649	14,624	6,414	1,274	6,973	61,917	5,007	2,902	412	194	379,142	100.000
Percent			0.171	50.294	0.381	22.854	3.857	1.692	0.336	1.839	16.331	1.321	0.765	0.109	0.051	100.000	

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TABLE C18. Summary Distribution of Cost Responsibility by Axle Class (\$1000)

Element	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers			Total	Percent		
				2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles			6-axle	7 or more axles
Capital	789	324,251	10,261	147,225	35,070	25,457	17,570	17,788	124,981	38,353	5,625	785	1,671	749,825	66.417
Maintenance & administration	649	190,684	1,444	86,649	14,624	6,414	1,274	6,973	61,917	5,007	2,902	412	194	379,142	33.583
State-maintained system	1,438	514,935	11,705	233,874	49,694	31,871	18,844	24,761	186,897	43,359	8,527	1,196	1,865	1,128,967	100.000
Percent	0.127	45.611	1.037	20.716	4.402	2.823	1.669	2.193	16.555	3.841	0.755	0.106	0.165	100.000	

TABLE C19. Percentage of Vehicles by Axle Class in Registered Weight Categories

Registered weight (pounds)	Single-unit trucks			Single trailer			Multiple trailers			
	2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle	7 or more axles
6,000	100.00									
10,000		8.26	0.24	0.76		0.09				
14,000		9.16	0.31	1.02	0.17					
18,000		11.43	1.02	0.25	0.17					
22,000		6.85	0.86	0.25						
26,000		26.30	2.83	1.02	1.36					
32,000		12.80	2.28	2.29	3.40	0.18				
38,000		14.45	5.65	0.76	2.21	0.14	0.47			
44,000		2.55	13.50	2.04	5.44	0.36	0.71	5.00		
55,000		4.20	29.04	10.43	23.98	2.41	0.94			
59,999		0.20	1.74	1.81	3.19	0.46	0.08			
62,000		0.22	1.94	2.01	6.00	0.86	0.15			
73,280		1.23	13.34	55.98	6.80	1.82	0.71	35.00		
80,000		2.36	27.24	21.37	47.28	93.69	96.93	60.00	100.00	100.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Fraction of cab cards issued for 55,001-59,999: SU 0.473 Combo 0.347  
 Fraction of cab cards issued for 60,000-62,000: SU 0.527 Combo 0.653

62,000 0.42 3.69 3.82 9.18 1.32 0.24

TABLE C20. Cost Responsibility by Registered Weight for Annual Construction Expenditure by Construction Element (\$1000)

Construction element	Motor-cycles	Cars	Buses	Truck registered weight class (pounds)														Total	Percent
				6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000		
Planning & design	137	38,033	292	16,831	123	136	171	104	401	216	253	148	377	36	57	236	2,599	60,151	8.022
Right of way	123	34,678	286	15,512	112	124	157	95	367	196	231	131	327	30	46	198	1,893	54,506	7.269
Utility relocation	48	13,528	114	5,823	42	46	58	35	137	73	86	49	122	11	17	73	715	20,978	2.798
Grade, drain, & surfacing	326	162,218	5,933	74,911	635	980	1,571	1,164	5,313	3,556	4,889	3,300	10,553	1,166	1,845	13,583	128,046	419,985	56.011
Resurfacing	72	22,129	2,746	10,791	3	11	37	50	374	432	980	550	2,915	330	519	7,149	47,795	96,883	12.921
Bridges	75	47,093	819	20,496	88	135	219	162	737	474	655	367	1,118	112	180	927	10,606	84,263	11.238
Miscellaneous	9	6,572	72	2,861	12	18	28	21	95	62	83	45	150	19	33	159	2,821	13,058	1.742
State-maintained system	789	324,251	10,261	147,225	1,014	1,449	2,242	1,631	7,424	5,010	7,177	4,590	15,561	1,704	2,697	22,325	194,474	749,825	100.000
Percent	0.105	43.244	1.368	19.635	0.135	0.193	0.299	0.218	0.990	0.668	0.957	0.612	2.075	0.227	0.360	2.977	25.936	100.000	



TABLE C21. Cost Responsibility by Registered Weight for Annual Maintenance and Administration Expenditure by Expenditure Category (\$1000)

Element	Motor-cycles	Truck registered weight class (pounds)																Total	Percent		
		Cars	Buses	6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000				
Maintenance & traffic																					
Roads	266	77,362	567	35,154	627	663	840	509	1,997	1,217	1,388	1,206	3,553	430	739	2,819	48,276	177,611	46.846		
Structures	7	4,290	79	1,949	9	14	23	17	77	51	70	43	139	15	26	121	1,801	8,731	2.303		
Traffic services	58	16,749	123	7,611	58	63	80	48	187	103	118	72	193	21	34	134	1,901	27,550	7.266		
Administration																					
Administration	210	61,137	448	27,781	211	230	291	176	681	374	431	263	704	75	124	489	6,938	100,564	26.524		
Enforcement																					
Motor carriers					259	282	356	215	834	458	528	322	862	92	152	598	8,494	13,452	3.548		
Other enforcement	107	31,147	228	14,154	108	117	148	90	347	191	220	134	359	38	63	249	3,535	51,234	13.513		
Miscellaneous																					
State-maintained system	649	190,684	1,444	86,649	1,271	1,369	1,737	1,054	4,123	2,394	2,755	2,040	5,808	672	1,139	4,410	70,945	379,142	100.000		
Percent	0.171	50.294	0.381	22.854	0.335	0.361	0.458	0.278	1.087	0.631	0.727	0.538	1.532	0.177	0.300	1.163	18.712	100.000			

TABLE C22. Summary Distribution of Cost Responsibility by Registered Weight (\$1000)

Element	Motor-cycles	Cars	Buses	Truck registered weight class (pounds)														Total	Percent
				6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000		
Capital	789	324,251	10,261	147,225	1,014	1,449	2,242	1,631	7,424	5,010	7,177	4,590	15,561	1,704	2,697	22,325	194,474	749,825	66.417
Maintenance & administration	649	190,684	1,444	86,649	1,271	1,369	1,737	1,054	4,123	2,394	2,755	2,040	5,808	672	1,139	4,410	70,945	379,142	33.583
State-maintained system	1,438	514,935	11,705	233,874	2,285	2,818	3,979	2,685	11,547	7,403	9,931	6,630	21,369	2,376	3,836	26,735	265,420	1,128,967	100.000
Percent	0.127	45.611	1.037	20.716	0.202	0.250	0.352	0.238	1.023	0.656	0.880	0.587	1.893	0.210	0.340	2.368	23.510	100.000	

APPENDIX D

FY 1997 REVENUE ATTRIBUTION TABLES



TABLE R1. Summary of Revenue Attributed to State-Maintained System

Source	Revenue (\$1000)	
Fuel tax revenue		
Kentucky, heavy vehicle surtax	2,008	
Kentucky, carrier surtax	14,439	
Kentucky, normal & normal use	284,519	
Federal	228,966	
Subtotal		529,932
Vehicle registration and license fees		
Cars	24,315	
Buses	31	
Motorcycles	499	
Trucks		
Kentucky	18,848	
Apportioned	23,614	
Vehicle ID cards	5,714	
Permits	6,908	
Other	8,355	
Subtotal		88,283
Miscellaneous		37,117
Operator's license fees		6,278
Commercial driver's license		1,119
Usage taxes		
Kentucky, buses	55	
Kentucky, other vehicles	341,535	
Federal, trucks and trailers	36,450	
Subtotal		378,040
Road tolls		12,654
Other motor carrier taxes		
Kentucky, weight-distance	64,171	
Kentucky, extended-weight permit	511	
Federal, use	12,371	
Subtotal		77,053
Other federal taxes		7,175
<b>Total</b>		<b>1,137,650</b>

TABLE R2. Distribution of Vehicle-Miles Traveled by Axle Class (1000)

Functional class	Rural or urban	Number of lanes	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer			Multiple trailers			Total	
						2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle		7 or more axles
Interstate	Rural	4	13,398	2,429,481	17,616	1,054,455	134,420	25,603	4,854	106,631	1,013,550	12,406	57,307	7,345	1,048	4,878,114
		6	1,005	288,632	1,551	170,649	21,109	4,131	617	4,820	150,519	889	8,966	1,056	25	653,971
Principal arterial	Rural	2	6,044	1,305,917	11,779	670,738	67,663	33,765	3,786	18,621	77,582	16,960	1,085	111	44	2,214,094
		4	6,156	1,743,105	9,427	1,058,843	91,192	32,482	5,964	32,450	159,202	61,340	5,066	770	481	3,206,476
Minor arterial	Rural	2	7,433	1,351,779	12,367	590,645	58,001	25,750	6,946	17,237	41,336	5,463	424	106	127	2,117,614
		4	579	102,717	1,347	50,870	4,169	2,102	353	1,225	4,437	1,814	61	3	2	169,680
Major collector	Rural	2	11,393	3,406,184	30,625	1,459,084	130,131	46,251	8,571	26,758	97,729	7,735	836	261	575	5,226,133
		4	287	69,713	287	25,517	2,251	723	143	1,826	2,294	56	71	32		103,200
Minor collector	Rural		5,894	1,375,858	14,638	828,370	61,694	55,461	1,256	3,768	35,074	33,431	121			2,415,566
Local	Rural		2,404	638,147	2,177	153,513	10,463	2,729	292	1,730	97	260			512	812,326
Interstate	Urban	4	2,601	1,100,322	5,717	503,502	48,879	10,296	2,902	17,355	188,936	1,570	10,780	943	218	1,894,019
		6	3,449	1,505,991	6,142	615,147	57,496	13,421	3,995	12,327	190,120	1,658	9,195	984	285	2,420,210
		8	819	452,092	1,661	190,878	17,450	4,744	674	5,043	61,747	454	3,437	486	217	739,702
Freeway & x-way	Urban	2	16	11,183	67	6,770	696	139	30	33	130	5				19,069
		4	1,753	496,086	2,744	197,431	13,001	4,208	688	3,542	16,736	1,205	666	89	1,405	739,554
Principal arterial	Urban	2	1,500	630,105	6,454	252,659	18,741	4,565	1,093	2,898	7,148	593	83	28	65	925,931
		4	3,401	1,999,137	14,166	958,927	63,123	14,728	4,337	9,330	48,926	2,933	1,092	125	62	3,120,287
		6	69	131,078	758	53,128	2,973	421	192	393	1,488	4	42	6		190,551
Minor arterial	Urban	2	4,299	1,490,146	9,164	598,694	37,792	13,092	1,811	6,873	18,678	938	305	65	131	2,181,990
		4	1,104	637,474	3,834	223,955	15,121	6,662	1,922	2,757	4,472	485	72		45	897,901
		6	6	13,164	25	4,272	208	19	5	15	20					17,733
Collector	Urban	2	895	380,471	1,946	120,583	10,024	2,535	307	1,853	1,790	47				520,451
		4	25	45,006	242	17,869	1,493	140	5	186	670	11				65,647
Local	Urban			47,875	3,848	32,233	499	200								84,656
County maintained	Rural		6,481	2,548,652	14,551	1,455,124	111,389	23,791	8,864	8,279	2,969	376			794	4,181,271
		Urban		496,678	39,917	334,403	5,182	2,073								
City maintained	Rural		346	136,241	778	77,785	5,954	1,272	474	443	159	20			42	223,515
		Urban		793,330	63,758	534,133	8,277	3,311								
Other	Rural		65	25,472	145	14,543	1,113	238	89	83	30	4			8	41,790
		Urban		72,685	5,841	48,937	758	303								
State-maintained system			74,531	21,651,662	158,582	9,838,731	868,588	304,168	50,744	277,671	2,122,681	150,257	99,608	12,411	5,242	35,614,875
Total statewide			81,423	25,724,720	283,572	12,303,657	1,001,261	335,155	60,171	286,475	2,125,838	150,657	99,608	12,411	6,087	42,471,035
State-maintained average (%)			0.209	60.794	0.445	27.625	2.439	0.854	0.142	0.780	5.960	0.422	0.280	0.035	0.015	100.000
Statewide average (%)			0.192	60.570	0.668	28.970	2.358	0.789	0.142	0.675	5.005	0.355	0.235	0.029	0.014	100.000

TABLE R3. Percentage of Vehicles by Axle Class in Registered Weight Categories

Registered weight (pounds)	Single-unit trucks			Single trailer			Multiple trailers			
	2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle	7 or more axles
6,000	100.00									
10,000		8.26	0.24	0.76		0.09				
14,000		9.16	0.31	1.02	0.17					
18,000		11.43	1.02	0.25	0.17					
22,000		6.85	0.86	0.25						
26,000		26.30	2.83	1.02	1.36					
32,000		12.80	2.28	2.29	3.40	0.18				
38,000		14.45	5.65	0.76	2.21	0.14	0.47			
44,000		2.55	13.50	2.04	5.44	0.36	0.71	5.00		
55,000		4.20	29.04	10.43	23.98	2.41	0.94			
59,999		0.21	1.81	1.88	3.27	0.47	0.08			
62,000		0.22	1.87	1.94	5.91	0.85	0.15			
73,280		1.23	13.34	55.98	6.80	1.82	0.71	35.00		
80,000		2.36	27.24	21.37	47.28	93.69	96.93	60.00	100.00	100.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE R4. Distribution of Vehicle Miles Traveled by Registered Weight (1000)

Functional class	Rural or Urban	Number of Lanes	Motor-cycles	Cars	Buses	Truck registered weight class (pounds)														Total
						6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000	
Interstate	Rural	4	13,398	2,429,481	17,616	1,054,455	12,124	12,623	15,814	9,436	37,574	23,361	24,701	19,421	63,672	9,092	15,779	53,594	1,065,972	4,878,114
		6	1,005	288,632	1,551	170,649	1,895	1,961	2,464	1,482	5,740	3,247	3,604	2,372	6,938	995	1,697	7,362	152,374	653,971
Principal arterial	Rural	2	6,044	1,305,917	11,779	670,738	5,770	6,374	8,117	4,933	19,040	10,287	12,310	7,830	19,537	1,813	2,637	10,631	110,337	2,214,094
		4	6,156	1,743,105	9,427	1,058,843	7,801	8,571	10,821	6,539	25,402	13,937	16,280	9,863	26,079	2,752	4,282	16,099	240,518	3,206,476
Minor arterial	Rural	2	7,433	1,351,779	12,367	590,645	4,944	5,494	6,937	4,211	16,286	8,828	10,351	6,245	15,820	1,482	2,120	10,147	62,527	2,117,614
		4	579	102,717	1,347	50,870	356	394	501	304	1,176	639	766	496	1,240	116	168	727	7,283	169,680
Major collector	Rural	2	11,393	3,406,184	30,625	1,459,084	11,015	12,197	15,408	9,330	35,981	18,987	22,241	11,644	28,636	2,613	3,736	16,510	130,547	5,226,133
		4	287	69,713	287	25,517	191	213	268	161	639	374	411	270	813	91	149	396	3,422	103,200
Minor collector	Rural		5,894	1,375,858	14,638	828,370	5,269	5,844	7,625	4,706	17,856	9,377	12,346	9,661	20,894	1,475	1,768	10,033	83,951	2,415,566
Local	Rural		2,404	638,147	2,177	153,513	873	973	1,227	741	2,855	1,467	1,708	738	1,683	134	183	778	2,726	812,326
Interstate	Urban	4	2,601	1,100,322	5,717	503,502	4,257	4,568	5,727	3,443	13,411	7,488	8,314	4,876	14,071	1,799	2,985	11,995	198,944	1,894,019
		6	3,449	1,505,991	6,142	615,147	4,985	5,370	6,738	4,062	15,708	8,518	9,635	5,192	14,278	1,736	2,796	12,255	198,207	2,420,210
		8	819	452,092	1,661	190,878	1,514	1,629	2,052	1,237	4,799	2,640	2,992	1,773	4,881	590	962	3,895	65,287	739,702
Freeway & x-way	Urban	2	16	11,183	67	6,770	58	65	81	49	188	94	110	39	84	6	8	49	204	19,069
		4	1,753	496,086	2,744	197,431	1,105	1,217	1,536	928	3,593	1,926	2,228	1,209	3,104	312	473	1,893	22,016	739,554
Principal arterial	Urban	2	1,500	630,105	6,454	252,659	1,574	1,747	2,196	1,325	5,108	2,638	3,051	1,308	3,100	271	380	1,811	10,703	925,931
		4	3,401	1,999,137	14,166	958,927	5,328	5,888	7,390	4,460	17,188	8,917	10,272	4,447	10,825	1,018	1,467	7,094	60,363	3,120,287
		6	69	131,078	758	53,128	249	276	345	208	801	410	465	165	397	37	54	269	1,840	190,551
Minor arterial	Urban	2	4,299	1,490,146	9,164	598,694	3,184	3,533	4,468	2,705	10,421	5,443	6,396	3,232	7,686	664	928	4,145	26,883	2,181,990
		4	1,104	637,474	3,834	223,955	1,284	1,430	1,805	1,098	4,222	2,232	2,645	1,497	3,544	300	396	2,448	8,633	897,901
		6	6	13,164	25	4,272	17	19	24	14	55	28	31	9	19	1	2	9	37	17,733
Collector	Urban	2	895	380,471	1,946	120,583	838	932	1,175	709	2,736	1,414	1,637	712	1,677	142	200	792	3,591	520,451
		4	25	45,006	242	17,869	124	138	172	103	399	202	229	70	165	15	23	65	801	65,647
Local	Urban		0	47,875	3,848	32,233	42	46	59	36	137	68	83	40	79	5	5	33	66	84,656
County maintained	Rural		6,481	2,548,652	14,551	1,455,124	9,330	10,382	13,007	7,854	30,169	15,284	17,694	6,696	14,575	1,116	1,374	10,124	18,859	4,181,271
	Urban		0	496,678	39,917	334,403	433	481	613	373	1,421	710	866	412	820	48	50	340	687	878,252
City maintained	Rural		346	136,241	778	77,785	499	555	695	420	1,613	817	946	358	779	60	73	541	1,008	223,515
	Urban		0	793,330	63,758	534,133	692	768	979	595	2,270	1,134	1,383	658	1,309	77	80	543	1,097	1,402,808
Other	Rural		65	25,472	145	14,543	93	104	130	78	302	153	177	67	146	11	14	101	188	41,790
	Urban		0	72,685	5,841	48,937	63	70	90	55	208	104	127	60	120	7	7	50	101	128,525
State-maintained system			74,531	21,651,662	158,582	9,838,731	74,799	81,503	102,949	62,220	241,314	132,523	152,807	93,110	249,223	27,461	43,199	173,030	2,457,232	35,614,875
Total statewide			81,423	25,724,720	283,572	12,303,657	85,909	93,863	118,463	71,594	277,296	150,725	173,999	101,361	266,972	28,780	44,796	184,730	2,479,172	42,471,035
State-maintained average (%)			0.209	60.794	0.445	27.625	0.210	0.229	0.289	0.175	0.678	0.372	0.429	0.261	0.700	0.077	0.121	0.486	6.899	100.000
Statewide average (%)			0.192	60.570	0.668	28.970	0.202	0.221	0.279	0.169	0.653	0.355	0.410	0.239	0.629	0.068	0.105	0.435	5.837	100.000



TABLE R5. Diesel Powered Trucks by Truck Class

Registered weight (pounds)	Statewide VMT (1000)										Percent diesel by weight class	
	Single-unit trucks			Single trailer			Multiple trailers					
	2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle	7 or more axles		
6,000	12,303,657					1,931						0.58
10,000		82,729	789	459		1,931						10.60
14,000		91,711	1,052	612	487							2.35
18,000		114,403	3,420	153	487							19.14
22,000		68,547	2,894	153								33.16
26,000		263,316	9,471	612	3,898							33.16
32,000		128,112	7,629	1,378	9,744	3,862						64.04
38,000		144,658	18,941	459	6,334	2,896	711					99.43
44,000		25,528	45,249	1,225	15,590	7,723	1,066	4,980				99.43
55,000		42,074	97,337	6,277	68,696	51,167	1,421					99.43
59,999		2,093	6,082	1,130	9,374	9,975	127					99.43
62,000		2,162	6,282	1,167	16,935	18,022	229					99.43
73,280		12,291	44,722	33,683	19,488	38,616	1,066	34,863				99.43
80,000		23,637	91,286	12,861	135,442	1,991,645	146,038	59,765	12,411	6,087		99.43
Percent diesel by axle class	0.58	47.53	94.85	95.91	97.02	99.29	99.43	99.43	99.43	99.43		

TABLE R6. Fuel Consumption by Vehicle Type

	Motor-cycles	Cars	Buses	Single-unit trucks			Single trailer		Multiple trailers				Total	
				2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle		7 or more axles
Fuel efficiency (mpg)	50.00	22.56	6.62	15.28	6.83	6.83	6.83	5.87	5.87	5.87	5.87	5.87	5.87	
Percent special fuel		0.81	75.00	0.58	47.53	94.85	95.91	97.02	99.29	99.43	99.43	99.43	99.43	
Statewide, 1,000 gallons (unadjusted)														
Gasoline & gasohol														
Gasoline (includes LPG)	1,572	1,092,165	10,341	773,025	74,274	2,442	348	1,403	2,500	141	93	12	6	1,958,322
Gasohol	56	38,879	368	27,518	2,644	87	12	50	89	5	3	0	0	69,713
Special fuels		9,236	32,127	4,670	69,680	46,542	8,449	47,350	359,564	25,519	16,872	2,102	1,031	623,143
Total	1,628	1,140,280	42,836	805,213	146,598	49,071	8,810	48,803	362,153	25,666	16,969	2,114	1,037	2,651,178
Statewide, 1,000 gallons (*adjusted)														
Gasoline & gasohol														
Gasoline (includes LPG)	1,572	1,092,165	10,341	773,025	74,274	2,442	348	1,403	2,500	141	93	12	6	1,958,322
Gasohol	56	38,879	368	27,518	2,644	87	12	50	89	5	3	0	0	69,713
Special fuels		9,236	32,127	4,670	69,680	46,542	8,449	47,350	359,564	25,519	16,872	2,102	1,031	623,143
Total	1,628	1,140,280	42,836	805,213	146,598	49,071	8,810	48,803	362,153	25,666	16,969	2,114	1,037	2,651,178

\* The adjustment process to force estimated gallons to match reported gallons has been eliminated; therefore, "unadjusted" and "adjusted" categories reflect the same values.

TABLE R7. Motor Fuel Tax Revenue by Registered Weight Categories (\$1000)

	Motor-cycles	Cars	Buses	Truck registered weight class (pounds)														Total	
				6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000		
Kentucky rates (\$/gallon)																			
Heavy vehicle surtax																0.022	0.022	0.022	
Carrier surtax, gasoline										0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	
Carrier surtax, gasohol										0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	
Carrier surtax, special fuels										0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052	
Normal & normal use, gasoline	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	
Normal & normal use, gasohol	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	
Normal & normal use, special fuels	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	
Federal rates (\$/gallon)																			
Gasoline	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	
Gasohol	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	
Special fuels	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	
Statewide fuel, 1,000 gallons (adjusted)																			
Gasoline	1,572	1,092,165	10,341	773,025	6,148	6,817	8,515	5,107	19,624	9,619	10,907	2,322	4,265	264	317	1,607	5,709	1,958,322	
Gasohol	56	38,879	368	27,518	219	243	303	182	699	342	388	83	152	9	11	57	203	69,713	
Special fuels		9,236	32,127	4,670	6,258	6,695	8,538	5,194	20,370	12,432	14,419	13,139	37,576	4,407	7,073	27,634	413,374	623,143	
Total	1,628	1,140,280	42,836	805,213	12,624	13,754	17,356	10,482	40,693	22,394	25,714	15,544	41,992	4,680	7,401	29,298	419,286	2,651,178	
Fuel revenue, state-maintained system (unadjusted)																			
Kentucky																			
Heavy vehicle surtax																163	645	9,224	10,032
Carrier surtax										641	739	545	1,518	174	278	1,090	16,003	20,987	
Normal & normal use	181	126,366	4,042	89,275	1,262	1,378	1,737	1,048	4,065	2,210	2,534	1,434	3,827	422	665	2,639	37,364	280,447	
Total	181	126,366	4,042	89,275	1,262	1,378	1,737	1,048	4,065	2,850	3,273	1,978	5,345	596	1,105	4,374	62,591	311,465	
Federal																			
Gasoline	157	109,216	1,034	77,302	615	682	851	511	1,962	962	1,091	232	426	26	32	161	571	195,832	
Gasohol	2	1,555	15	1,101	9	10	12	7	28	14	16	3	6	0	0	2	8	2,789	
Special fuels		1,478	5,140	747	1,001	1,071	1,366	831	3,259	1,989	2,307	2,102	6,012	705	1,132	4,421	66,140	99,703	
Total	159	112,249	6,189	79,150	1,625	1,763	2,230	1,349	5,250	2,965	3,413	2,338	6,445	732	1,164	4,584	66,719	298,324	
Fuel revenue, state-maintained system (adjusted)																			
Kentucky																			
Heavy vehicle surtax																33	129	1,847	2,008
Carrier surtax										441	508	375	1,044	120	191	750	11,010	14,439	
Normal & normal use	183	128,201	4,100	90,571	1,281	1,398	1,762	1,063	4,124	2,242	2,571	1,454	3,883	428	674	2,677	37,906	284,519	
Total	183	128,201	4,100	90,571	1,281	1,398	1,762	1,063	4,124	2,683	3,079	1,829	4,927	548	898	3,556	50,763	300,966	
Federal																			
Gasoline	121	83,825	794	59,330	472	523	654	392	1,506	738	837	178	327	20	24	123	438	150,303	
Gasohol	2	1,194	11	845	7	7	9	6	21	11	12	3	5	0	0	2	6	2,140	
Special fuels		1,134	3,945	574	768	822	1,049	638	2,501	1,527	1,771	1,614	4,614	541	869	3,394	50,763	76,523	
Total	122	86,152	4,750	60,749	1,247	1,353	1,711	1,035	4,029	2,275	2,620	1,794	4,946	562	893	3,519	51,207	228,966	
Kentucky state-maintained	183	128,201	4,100	90,571	1,281	1,398	1,762	1,063	4,124	2,683	3,079	1,829	4,927	548	898	3,556	50,763	300,966	
Federal state-maintained	122	86,152	4,750	60,749	1,247	1,353	1,711	1,035	4,029	2,275	2,620	1,794	4,946	562	893	3,519	51,207	228,966	

Kentucky normal & normal use tax & carrier surtax for road fund deposit: 74%

Note: The Kentucky heavy vehicle surtax was repealed effective July 15, 1996; however, quarterly tax returns by motor carriers resulted in previous quarter income of \$2,008,000.

TABLE R8. Motor Vehicle Registration Fees (Dollars)

General fees	
Passenger car	12.00
Farm truck	12.00
School and church bus	12.00
Motorcycle	9.50
Motor vehicle dealer	25.50
House car	20.50
Trailer drawn by passenger car	5.00
Trailer drawn by truck	20.00
House trailer	10.00
Truck fees	
0 - 6,000	12.00
6,001 - 10,000	24.50
10,001 - 14,000	30.50
14,001 - 18,000	50.50
18,001 - 22,000	132.50
22,001 - 26,000	160.50
26,001 - 32,000	216.50
32,001 - 38,000	300.50
38,001 - 44,000	474.50
44,001 - 55,000	544.50
55,001 - 62,000	882.50
62,001 - 73,280	1,125.50
73,281 - 80,000	1,260.50

TABLE R9. Truck Registration Revenue

	Truck registered weight class (pounds)														Total
	6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000	
Number of Kentucky registrations															
Farm							118,264	153	534		57	59	644	119,711	
Other	784,127	18,919	9,827	8,660	3,676	9,800	4,044	1,146	1,461	2,357	327	1,003	3,104	848,451	
Exempt					212	613	464	165	620	877	166	422	375	3,914	
Total	784,127	18,919	9,827	8,660	3,888	10,413	4,508	119,575	2,234	3,768		550	1,484	4,123	972,076
Registration fee (\$)															
Farm							12.00	189.80	217.80		353.00	450.20	504.20		
Other	12.00	24.50	30.50	50.50	132.50	160.50	216.50	300.50	474.50	544.50	882.50	1125.50	1260.50		
Exempt					99.38	120.38	162.38	225.38	355.88	408.38	661.88	844.13	945.38		
Unadjusted revenue from Kentucky trucks (\$1000)															
Farm							993	20	81		14	19	227	1,355	
Other	6,587	324	210	306	341	1,101	613	241	485	898	202	790	2,739	14,838	
Exempt					15	52	53	26	154	251	77	249	248	1,125	
Total	6,587	324	210	306	356	1,153	666	1,261	660	1,230	293	1,058	3,214	17,318	
Adjusted revenue (\$1000)															
Kentucky															
Farm							1,081	22	89		15	20	247	1,475	
Other	7,169	353	228	333	371	1,198	667	262	528	978	220	860	2,981	16,149	
Exempt					16	56	57	28	168	273	84	271	270	1,224	
Apportioned	44	20	23	21	11	46	185	128	154	520	132	155	798	23,614	
Vehicle ID cards	11	5	6	5	3	11	45	31	37	126	32	37	193	5,714	
Permits	13	6	7	6	3	14	54	37	45	152	39	45	233	6,908	
Total	7,236	383	263	365	403	1,326	1,008	1,568	955	2,137	203	556	2,376	36,303	55,084
Number of vehicle ID cards:	1,774	802	927	850	427	1,887	7,509	5,176	6,265	21,096	5,364	6,277	32,398	867,821	958,573
Kentucky registration fees for road fund deposit:			70%												

TABLE R10. Toll Road Revenues and Their Allocation (Unadjusted)

Vehicle toll code	Revenue (dollars)	Allocation procedure
1	8,251,908	To cars and 6,000-pound trucks based on relative VMT
2	131,297	Same as above
3	184,942	Same as above
4	309,153	To buses and SU-2A-6T based on relative VMT and registered weight distribution of SU-2A-6T
5	188,116	To registered weight distribution of SU-3A
6	278,911	To SU-4A and ST-4A based on relative VMT and registered weight distributions
7	3,010,063	To registered weight distribution of ST-5A
8	248,140	To registered weight distribution of MT-6A
<b>Total</b>	<b>12,602,529</b>	

VMT allocations based on travel on 4-lane, rural, principal arterials

TABLE R11. Total Revenue Generated by Weight Class (\$1000)

	Motor-cycles	Cars	Buses	Truck registered weight class (pounds)														Total
				6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000	
<b>Fuel taxes</b>																		
Kentucky, heavy vehicle surtax															33	129	1,847	2,008
Kentucky, carrier surtax										441	508	375	1,044	120	191	750	11,010	14,439
Kentucky, normal & normal use	183	128,201	4,100	90,571	1,281	1,398	1,762	1,063	4,124	2,242	2,571	1,454	3,883	428	674	2,677	37,906	284,519
Federal	122	86,152	4,750	60,749	1,247	1,353	1,711	1,035	4,029	2,275	2,620	1,794	4,946	562	893	3,519	51,207	228,966
<b>Vehicle registration and license fees</b>																		
Cars		24,315																24,315
Buses			31															31
Motorcycles	499																	499
<b>Trucks</b>																		
Kentucky				7,169	353	228	333	387	1,255	724	1,372	718	1,339		319	1,152	3,498	18,848
Apportioned				44	20	23	21	11	46	185	128	154	520	132	155	798	21,378	23,614
Vehicle ID cards				11	5	6	5	3	11	45	31	37	126	32	37	193	5,173	5,714
Permits				13	6	7	6	3	14	54	37	45	152	39	45	233	6,254	6,908
Other	17	5,079	37	2,308	18	19	24	15	57	31	36	22	58	6	10	41	576	8,355
Miscellaneous	78	22,565	165	10,254	78	85	107	65	251	138	159	97	260	29	45	180	2,561	37,117
Operator's license fees	13	3,817	28	1,734	13	14	18	11	43	23	27	16	44	5	8	31	433	6,278
Commercial driver's license									76	42	48	29	78	9	14	54	770	1,119
<b>Usage taxes</b>																		
Kentucky, buses			55															55
Kentucky, other vehicles	2,608	206,189		103,535	3,434	1,704	1,680	725	2,215	1,113	8,935	529	1,225	168	198	1,259	6,019	341,535
Federal, trucks and trailers										1,743	1,062	2,842	313	493	1,973	28,024	36,450	
Road tolls		5,352	29	3,251	27	27	35	21	83	55	61	57	201	27	45	124	3,260	12,654
<b>Other motor carrier taxes</b>																		
Kentucky, weight distance															1,037	4,153	58,981	64,171
Kentucky, extended-weight permits																	511	511
Federal, use												1,045	115	181	726	10,304	12,371	
<b>Other federal taxes</b>																		
	15	4,362	32	1,982	15	16	21	13	49	27	31	19	50	6	9	35	495	7,175
<b>Total</b>	<b>3,536</b>	<b>486,031</b>	<b>9,228</b>	<b>281,620</b>	<b>6,495</b>	<b>4,881</b>	<b>5,724</b>	<b>3,351</b>	<b>12,251</b>	<b>7,395</b>	<b>18,306</b>	<b>6,410</b>	<b>17,813</b>	<b>1,989</b>	<b>4,385</b>	<b>18,027</b>	<b>250,208</b>	<b>1,137,650</b>
<b>Percentage</b>	<b>0.311</b>	<b>42.722</b>	<b>0.811</b>	<b>24.755</b>	<b>0.571</b>	<b>0.429</b>	<b>0.503</b>	<b>0.295</b>	<b>1.077</b>	<b>0.650</b>	<b>1.609</b>	<b>0.563</b>	<b>1.566</b>	<b>0.175</b>	<b>0.385</b>	<b>1.585</b>	<b>21.993</b>	<b>100.000</b>

TABLE R12. Total Revenue Generated by Axle Class (\$1000)

	Motorcycles	Cars	Buses	Single-unit trucks			Single trailer			Multiple trailers			Total	
				2-axle 4-tire	2-axle 6-tire	3-axle	4 or more axles	4 or less axles	5-axle	6 or more axles	5 or less axles	6-axle		7 or more axles
<b>Fuel taxes</b>														
Kentucky, heavy vehicle surtax					25	97	30	125	1,537	110	71	9	4	2,008
Kentucky, carrier surtax					1,183	1,212	212	1,174	9,468	671	439	56	23	14,439
Kentucky, normal & normal use	183	128,201	4,100	90,571	14,657	4,778	791	4,332	32,774	2,319	1,539	191	81	284,519
Federal	122	86,152	4,750	60,749	14,901	6,007	1,023	5,604	44,114	3,125	2,050	259	109	228,966
<b>Vehicle registration and license fees</b>														
Cars		24,315												24,315
Buses			31											31
Motorcycles	499													499
<b>Trucks</b>														
Kentucky				7,169	4,656	1,491	265	1,037	3,611	238	356	18	7	18,848
Apportioned				44	731	1,234	249	1,515	17,720	1,279	689	108	46	23,614
Vehicle ID cards				11	177	299	60	367	4,288	309	167	26	11	5,714
Permits				13	214	361	73	443	5,184	374	202	32	13	6,908
Other	17	5,079	37	2,308	204	71	12	65	498	35	23	3	1	8,355
Miscellaneous	78	22,565	165	10,254	905	317	53	289	2,212	157	104	13	5	37,117
Operator's license fees	13	3,817	28	1,734	153	54	9	49	374	26	18	2	1	6,278
Commercial driver's license					175	93	16	87	665	47	31	4	2	1,119
<b>Usage taxes</b>														
Kentucky, buses			55											55
Kentucky, other vehicles	2,608	206,189		103,535	18,090	2,502	345	1,493	5,880	421	428	30	13	341,535
Federal, trucks and trailers					2,498	3,208	546	3,005	24,143	1,714	1,136	142	60	36,450
Road tolls		5,352	29	3,251	362	262	43	284	2,744	196	107	16	7	12,654
<b>Other motor carrier taxes</b>														
Kentucky, weight distance					793	3,100	966	3,999	49,092	3,527	2,271	298	126	64,171
Kentucky, extended-weight permits					4	17	2	27	413	30	12	3	1	511
Federal, use					299	935	195	1,016	8,832	623	397	52	22	12,371
Other federal taxes	15	4,362	32	1,982	175	61	10	56	428	30	20	3	1	7,175
<b>Total</b>	<b>3,536</b>	<b>486,031</b>	<b>9,228</b>	<b>281,620</b>	<b>60,202</b>	<b>26,100</b>	<b>4,898</b>	<b>24,968</b>	<b>213,975</b>	<b>15,233</b>	<b>10,061</b>	<b>1,264</b>	<b>534</b>	<b>1,137,650</b>
<b>Percentage</b>	<b>0.311</b>	<b>42.722</b>	<b>0.811</b>	<b>24.755</b>	<b>5.292</b>	<b>2.294</b>	<b>0.431</b>	<b>2.195</b>	<b>18.809</b>	<b>1.339</b>	<b>0.884</b>	<b>0.111</b>	<b>0.047</b>	<b>100.000</b>



TABLE R13a. Annual Revenue Attribution by Weight Class

Registered Weight Category	Total Annual Revenue Attribution (\$)	Total Annual Revenue Attribution (%)
Motorcycles	3,536,133.10	0.311
Cars	486,031,259.16	42.722
Buses	9,227,500.81	0.811
6,000	281,619,933.98	24.755
10,000	6,495,366.65	0.571
14,000	4,880,844.69	0.429
18,000	5,723,660.42	0.503
22,000	3,351,061.95	0.295
26,000	12,251,237.86	1.077
32,000	7,394,576.67	0.650
38,000	18,305,642.48	1.609
44,000	6,410,451.05	0.563
55,000	17,813,073.05	1.566
59,999	1,989,493.14	0.175
62,000	4,385,082.88	0.385
73,280	18,027,270.61	1.585
80,000	250,207,637.81	21.993
<b>Total</b>	<b>1,137,650,226.31</b>	<b>100.000</b>

TABLE R13b. Summary Distribution of Annual Revenue Attribution

Vehicle Type Category	Total Annual Revenue Attribution (\$)	Total Annual Revenue Attribution (%)
Motorcycles & Cars	489,567,392.26	43.033
Buses	9,227,500.81	0.811
Pickups & Vans	281,619,933.98	24.755
Light Trucks	32,702,171.57	2.875
Medium Trucks	51,913,236.39	4.563
Heavy Trucks	272,619,991.30	23.963
<b>Total</b>	<b>1,137,650,226.31</b>	<b>100.000</b>

TABLE R14a. Annual Cost Responsibility by Weight Class

Registered Weight Category	Total Annual Cost Responsibility (\$)	Total Annual Cost Responsibility (%)
Motorcycles	1,438,107.69	0.127
Cars	514,935,115.49	45.611
Buses	11,705,179.35	1.037
6,000	233,873,577.52	20.716
10,000	2,285,108.63	0.202
14,000	2,818,213.38	0.250
18,000	3,978,710.32	0.352
22,000	2,685,111.11	0.238
26,000	11,547,435.56	1.023
32,000	7,403,344.58	0.656
38,000	9,931,434.35	0.880
44,000	6,629,561.60	0.587
55,000	21,369,279.11	1.893
59,999	2,375,806.72	0.210
62,000	3,836,304.57	0.340
73,280	26,735,018.75	2.368
80,000	265,419,576.19	23.510
Total	1,128,966,884.92	100.000

TABLE R14b. Summary Distribution of Annual Cost Responsibility

Vehicle Type Category	Total Annual Cost Responsibility (\$)	Total Annual Cost Responsibility (%)
Motorcycles & Cars	516,373,223.18	45.739
Buses	11,705,179.35	1.037
Pickups & Vans	233,873,577.52	20.716
Light Trucks	23,314,579.01	2.065
Medium Trucks	47,709,426.36	4.226
Heavy Trucks	295,990,899.51	26.218
Total	1,128,966,884.92	100.000

TABLE R15a. Revenue-to-Cost Ratio by Weight Class

Registered Weight Category	Revenue-to-Cost Ratio
Motorcycles	2.44
Cars	0.94
Buses	0.78
6,000	1.19
10,000	2.82
14,000	1.72
18,000	1.43
22,000	1.24
26,000	1.05
32,000	0.99
38,000	1.83
44,000	0.96
55,000	0.83
59,999	0.83
62,000	1.13
73,280	0.67
80,000	0.94

TABLE R15b. Summary of Revenue-to-Cost Ratio

Vehicle Type Category	Revenue-to-Cost Ratio
Motorcycles & Cars	0.94
Buses	0.78
Pickups & Vans	1.19
Light Trucks	1.39
Medium Trucks	1.08
Heavy Trucks	0.91

TABLE R16. Trend in Vehicle Miles Traveled (1000) by Registered Weight Categories

Year	Motor-cycles	Cars	Buses	6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	56,900	59,999	62,000	73,280	80,000	Total	
State-Maintained System VMT (1,000)																			
1988	67,085	17,735,862	108,871	7,239,531	71,157	68,407	117,111	72,153	216,301	163,108	95,899	100,688	152,074	22,999	31,413	166,672	1,866,455	28,295,786	
1990	76,064	18,773,176	110,902	8,067,708	69,916	67,347	115,938	69,918	214,262	165,654	96,505	100,233	183,087	27,595	36,607	163,071	1,957,768	30,295,750	
1992	91,504	21,649,831	152,692	9,033,112	91,113	90,603	123,348	67,157	227,721	150,066	152,335	95,843	194,061	32,359	48,628	178,604	2,169,613	34,548,590	
1994	72,585	20,497,587	175,458	8,931,861	74,344	78,004	98,127	53,834	215,209	126,108	177,399	87,244	209,514	30,221	48,893	189,826	2,223,975	33,290,190	
1996	74,531	21,651,662	158,582	9,838,731	74,799	81,503	102,949	62,220	241,314	132,523	152,807	93,110	249,223	27,461	43,199	173,030	2,457,232	35,614,875	
Annual Percent Change in VMT on State-Maintained System																			
1988-90	6.7	2.9	0.9	5.7	-0.9	-0.8	-0.5	-1.5	-0.5	0.8	0.3	-0.2	10.2	10.0	8.3	-1.1	2.4	3.5	
1990-92	10.1	7.7	18.8	6.0	15.2	17.3	3.2	-2.0	3.1	-4.7	28.9	-2.2	3.0	8.6	16.4	4.8	5.4	7.0	
1992-94	-10.3	-2.7	7.5	-0.6	-9.2	-7.0	-10.2	-9.9	-2.7	-8.0	8.2	-4.5	4.0	-3.3	0.3	3.1	1.3	-1.8	
1994-96	1.3	2.8	-4.8	5.1	0.3	2.2	2.5	7.8	6.1	2.5	-6.9	3.4	9.5	-4.6	-5.8	-4.4	5.2	3.5	
Statewide System VMT (1,000)																			
1988	77,263	19,937,432	133,871	8,205,751	77,595	74,623	127,655	78,344	235,753	177,141	103,520	106,455	160,774	23,576	32,097	171,385	1,890,789	31,614,024	
1990	86,659	20,911,998	121,615	9,148,395	76,837	74,007	127,220	76,439	235,075	180,381	104,315	105,226	190,567	28,048	37,098	166,461	1,966,658	33,636,999	
1992	102,319	23,833,117	163,628	10,134,826	99,966	99,391	135,119	73,554	249,192	162,884	161,299	100,176	200,383	32,905	49,253	181,735	2,179,555	37,959,302	
1994	85,098	24,225,301	307,952	11,233,777	83,352	87,535	109,988	60,288	240,787	139,797	196,883	92,187	219,339	31,027	49,931	196,975	2,238,269	39,598,485	
1996	81,423	25,724,720	283,572	12,303,657	85,909	93,863	118,463	71,594	277,296	150,725	173,999	101,361	266,972	28,780	44,796	184,730	2,479,172	42,471,035	
Annual Percent Change in VMT on State-Maintained System																			
1988-90	6.1	2.4	-4.6	5.7	-0.5	-0.4	-0.2	-1.2	-0.1	0.9	0.4	-0.6	9.3	9.5	7.8	-1.4	2.0	3.2	
1990-92	9.0	7.0	17.3	5.4	15.1	17.1	3.1	-1.9	3.0	-4.9	27.3	-2.4	2.6	8.7	16.4	4.6	5.4	6.4	
1992-94	-8.4	0.8	44.1	5.4	-8.3	-6.0	-9.3	-9.0	-1.7	-7.1	11.0	-4.0	4.7	-2.9	0.7	4.2	1.3	2.2	
1994-96	-2.2	3.1	-4.0	4.8	1.5	3.6	3.9	9.4	7.6	3.9	-5.8	5.0	10.9	-3.6	-5.1	-3.1	5.4	3.6	

TABLE R17. Trend in Axle Miles Traveled (1000) by Registered Weight Categories

Year	Motor-cycles	Cars	Buses	6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000	Total	
<b>State-Maintained System Axle-Miles Traveled (1,000)</b>																			
1988	134,170	35,471,724	217,741	14,481,350	144,747	138,524	240,765	160,128	445,384	358,316	234,379	330,717	503,878	99,720	139,741	721,083	9,199,333	63,021,701	
1990	152,128	37,546,352	221,803	16,137,998	142,383	136,624	239,934	151,263	445,209	376,531	238,078	317,250	631,480	119,901	162,581	685,730	9,649,982	67,355,225	
1992	183,009	43,299,661	305,385	18,066,224	184,952	184,019	253,677	138,185	475,107	347,092	462,801	301,910	693,831	135,015	209,997	778,166	10,633,899	76,652,930	
1994	145,169	40,995,174	350,916	17,863,723	153,645	158,927	199,997	110,390	444,866	289,560	396,148	284,006	741,860	126,361	211,239	832,160	10,914,668	74,218,808	
1996	149,061	43,303,324	317,165	19,677,463	156,872	165,938	210,204	127,324	499,812	304,751	347,368	301,903	889,483	110,904	181,793	705,757	12,085,372	79,534,493	
<b>Annual Percent Change in Axle-Miles Traveled on State-Maintained System</b>																			
1988-90	6.7	2.9	0.9	5.7	-0.8	-0.7	-0.2	-2.8	0.0	2.5	0.8	-2.0	12.7	10.1	8.2	-2.5	2.4	3.4	
1990-92	10.1	7.7	18.8	6.0	14.9	17.3	2.9	-4.3	3.4	-3.9	47.2	-2.4	4.9	6.3	14.6	6.7	5.1	6.9	
1992-94	-10.3	-2.7	7.5	-0.6	-8.5	-6.8	-10.6	-10.1	-3.2	-8.3	-7.2	-3.0	3.5	-3.2	0.3	3.5	1.3	-1.6	
1994-96	1.3	2.8	-4.8	5.1	1.1	2.2	2.6	7.7	6.2	2.6	-6.2	3.2	9.9	-6.1	-7.0	-7.6	5.4	3.6	
<b>Statewide System Axle-Miles Traveled (1,000)</b>																			
1988	154,527	39,874,865	267,744	16,413,949	157,724	151,076	262,203	172,973	484,793	387,812	251,055	346,058	527,797	101,756	142,319	737,918	9,308,185	69,742,753	
1990	173,317	41,823,995	243,229	18,299,482	157,486	150,028	262,782	173,620	482,719	401,520	263,713	378,746	580,464	116,436	162,920	814,957	9,583,376	74,068,790	
1992	204,639	47,666,233	327,256	20,308,387	164,632	156,715	273,107	182,552	506,846	441,848	292,752	435,344	659,020	143,370	202,400	883,057	10,657,909	83,506,067	
1994	170,197	48,450,601	615,903	22,505,676	162,913	154,844	269,557	180,404	501,422	440,731	292,304	440,484	661,207	149,330	211,342	887,861	10,795,392	86,890,167	
1996	162,846	51,449,440	567,144	24,649,715	173,977	166,545	289,610	195,793	539,251	475,931	317,611	500,489	755,997	160,810	227,453	960,386	11,736,561	93,329,559	
<b>Annual Percent Change in Axle-Miles Traveled on State-Maintained System</b>																			
1988-90	6.1	2.4	-4.6	5.7	-0.1	-0.3	0.1	0.2	-0.2	1.8	2.5	4.7	5.0	7.2	7.2	5.2	1.5	3.1	
1990-92	9.0	7.0	17.3	5.5	2.3	2.2	2.0	2.6	2.5	5.0	5.5	7.5	6.8	11.6	12.1	4.2	5.6	6.4	
1992-94	-8.4	0.8	44.1	5.4	-0.5	-0.6	-0.6	-0.6	-0.5	-0.1	-0.1	0.6	0.2	2.1	2.2	0.3	0.6	2.0	
1994-96	-2.2	3.1	-4.0	4.8	3.4	3.8	3.7	4.3	3.8	4.0	4.3	6.8	7.2	3.8	3.8	4.1	4.4	3.7	

TABLE R18. Trend in Passenger-Car-Equivalent Miles Traveled (1000) by Registered Weight Categories

Year	Motor-cycles	Cars	Buses	6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000	Total	
State-Maintained System PCE-Miles Traveled (1,000)																			
1988	33,543	17,735,862	163,306	7,254,574	130,656	125,729	217,725	143,036	402,583	321,646	206,507	281,668	433,033	76,699	106,849	564,182	6,973,669	35,171,267	
1990	38,032	18,773,176	166,353	8,083,270	128,929	124,312	217,801	136,576	402,239	337,654	211,304	278,171	538,736	92,135	124,042	541,080	6,968,979	37,162,791	
1992	45,752	21,649,831	229,038	9,033,112	162,557	161,872	223,886	122,059	417,997	300,710	380,721	263,547	583,074	107,006	164,079	599,069	8,080,175	42,524,483	
1994	36,292	20,497,589	426,812	8,931,863	136,985	142,445	180,067	99,783	401,144	255,122	355,009	246,496	626,446	98,901	162,531	613,402	7,947,348	41,158,234	
1996	37,265	21,651,662	397,284	9,838,731	138,896	148,692	189,355	115,068	449,732	268,538	312,375	267,334	758,255	88,705	142,218	554,749	8,709,539	44,068,397	
Annual Percent Change in PCE-Miles Traveled on State-Maintained System																			
1988-90	6.7	2.9	0.9	5.7	-0.7	-0.6	0.0	-2.3	0.0	2.5	1.2	-0.6	12.2	10.1	8.0	-2.0	0.0	2.8	
1990-92	10.1	7.7	18.8	5.9	13.0	15.1	1.4	-5.3	2.0	-5.5	40.1	-2.6	4.1	8.1	16.1	5.4	8.0	7.2	
1992-94	-10.3	-2.7	43.2	-0.6	-7.9	-6.0	-9.8	-9.1	-2.0	-7.6	-3.4	-3.2	3.7	-3.8	-0.5	1.2	-0.8	-1.6	
1994-96	1.3	2.8	-3.5	5.1	0.7	2.2	2.6	7.7	6.1	2.6	-6.0	4.2	10.5	-5.2	-6.2	-4.8	4.8	3.5	

TABLE R19. Trend in Equivalent-Single-Axle-Load Miles Traveled (1000) by Registered Weight Categories

Year	Motor-cycles	Cars	Buses	6,000	10,000	14,000	18,000	22,000	26,000	32,000	38,000	44,000	55,000	59,999	62,000	73,280	80,000	Total	
State-Maintained System ESAL-Miles Traveled (1,000)																			
1988	0	53,208	34,649	49,125	22,648	21,377	39,491	26,376	68,855	60,192	42,096	69,074	111,509	18,410	25,065	165,762	1,443,065	2,250,900	
1990	0	56,320	74,414	56,171	25,564	24,315	46,293	30,823	81,647	91,545	65,539	115,252	225,453	40,489	54,409	233,090	2,063,362	3,284,685	
1992	0	64,949	97,837	54,199	36,937	36,438	51,538	27,832	94,669	79,593	111,853	93,158	212,652	43,117	62,814	314,131	2,981,989	4,363,706	
1994	0	61,493	91,668	53,591	25,581	26,178	31,426	17,889	71,116	53,594	70,888	70,939	196,806	33,670	54,212	315,539	2,895,367	4,069,955	
1996	0	64,955	79,221	59,032	25,445	26,816	32,759	20,232	79,322	53,785	63,270	74,305	208,214	26,069	40,374	260,654	3,153,983	4,268,436	
Annual Percent Change in ESAL-Miles Traveled on State-Maintained System																			
1988-90	--	2.9	57.4	7.2	6.4	6.9	8.6	8.4	9.3	26.0	27.8	33.4	51.1	60.0	58.5	20.3	21.5	23.0	
1990-92	--	7.7	15.7	-1.8	22.2	24.9	5.7	-4.9	8.0	-6.5	35.3	-9.6	-2.8	3.2	7.7	17.4	22.3	16.4	
1992-94	--	-2.7	-3.2	-0.6	-15.4	-14.1	-19.5	-17.9	-12.4	-16.3	-18.3	-11.9	-3.7	-11.0	-6.8	0.2	-1.5	-3.4	
1994-96	--	2.8	-6.8	5.1	-0.3	1.2	2.1	6.6	5.8	0.2	-5.4	2.4	2.9	-11.3	-12.8	-8.7	4.5	2.4	





APPENDIX E  
INTERSTATE TRAVEL



TABLE E1. Travel on I 24 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
1	4	0.000	1.402	23,900	15.03	12.23	10.36	0.03	1.84
2	4	1.402	2.212	23,900	15.03	7.07	5.98	0.02	1.06
2	4	2.212	2.958	23,900	15.03	6.51	5.51	0.02	0.98
2	4	2.958	4.328	28,000	11.60	14.00	12.35	0.02	1.62
2	4	4.328	6.387	35,000	11.60	26.30	23.21	0.04	3.05
2	4	6.387	6.895	30,500	11.60	5.66	4.99	0.01	0.66
2	4	6.895	9.772	30,500	11.60	32.03	28.26	0.05	3.71
2	4	9.772	11.117	30,500	23.65	14.97	11.37	0.07	3.54
1	4	11.117	15.100	25,400	23.65	36.93	28.03	0.16	8.73
2	4	15.100	15.785	25,400	23.65	6.35	4.82	0.03	1.50
1	4	15.785	16.160	25,400	23.65	3.48	2.64	0.02	0.82
1	4	16.160	17.320	22,200	25.33	9.40	6.96	0.06	2.38
1	4	17.320	20.359	22,200	25.33	24.63	18.23	0.16	6.24
1	4	20.359	24.941	22,200	25.33	37.13	27.49	0.23	9.41
1	4	24.941	26.558	20,700	25.33	12.22	9.05	0.08	3.09
1	4	26.558	29.352	18,800	19.10	19.17	15.51	0.00	3.66
1	4	29.352	29.543	18,800	19.10	1.31	1.06	0.00	0.25
1	4	29.543	33.659	20,000	19.10	30.05	24.30	0.00	5.74
1	4	33.659	33.880	20,000	29.77	1.61	1.13	0.00	0.48
1	4	33.880	39.505	20,000	29.77	41.06	28.75	0.09	12.22
1	4	39.505	40.480	19,300	29.77	6.87	4.81	0.02	2.04
1	4	40.480	40.720	19,300	29.77	1.69	1.18	0.00	0.50
1	4	40.720	40.770	19,300	29.77	0.35	0.25	0.00	0.10
1	4	40.770	40.850	19,300	29.77	0.56	0.39	0.00	0.17
1	4	40.850	41.603	19,300	29.77	5.30	3.71	0.01	1.58
1	4	41.603	42.752	11,400	23.09	4.78	3.66	0.02	1.10
1	4	42.752	43.550	11,400	23.09	3.32	2.54	0.01	0.77
1	4	43.550	45.133	10,800	23.09	6.24	4.78	0.02	1.44
1	4	45.133	49.457	10,800	23.09	17.05	13.05	0.06	3.94
1	4	49.457	51.351	10,800	23.09	7.47	5.71	0.03	1.72
1	4	51.351	54.842	10,800	23.09	13.76	10.53	0.05	3.18
1	4	54.842	57.389	10,800	23.09	10.04	7.68	0.04	2.32
1	4	57.389	59.404	10,700	23.09	7.87	6.02	0.03	1.82
1	4	59.404	65.349	10,700	23.09	23.22	17.77	0.09	5.36
1	4	65.349	69.830	12,200	33.16	19.95	13.34	0.00	6.62
1	4	69.830	85.298	12,200	30.80	68.88	47.10	0.56	21.21
1	4	85.298	89.211	21,900	30.80	31.28	21.39	0.26	9.63
1	4	89.211	93.373	23,900	30.80	36.31	24.83	0.30	11.18
<b>Totals</b>				17,811	24.98	607.04	458.75	2.60	145.68

TABLE E2. Travel on I 64 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	4	0.000	0.650	33,200	11.33	7.877	6.98	0.01	0.89
2	6	0.650	0.852	33,200	11.33	2.448	2.17	0.00	0.28
2	6	0.852	1.106	57,300	9.99	5.312	4.77	0.02	0.53
2	6	1.106	4.790	70,800	9.99	95.202	85.40	0.30	9.51
2	6	4.790	5.062	91,200	9.99	9.054	8.12	0.03	0.90
2	6	5.062	5.179	149,000	9.99	6.363	5.71	0.02	0.64
2	6	5.179	5.541	149,000	8.44	19.687	17.96	0.07	1.66
2	6	5.541	5.967	95,400	8.44	14.834	13.53	0.05	1.25
2	4	5.967	6.332	95,400	8.44	12.710	11.59	0.04	1.07
2	4	6.332	6.454	95,400	8.44	4.248	3.88	0.01	0.36
2	4	6.454	7.945	78,900	8.48	42.939	39.12	0.18	3.64
2	4	7.945	12.275	97,500	8.55	154.094	140.66	0.27	13.17
2	4	12.275	12.320	116,000	8.85	1.905	1.73	0.00	0.17
2	4	12.320	12.810	116,000	8.85	20.747	18.86	0.05	1.84
2	6	12.810	13.135	116,000	8.59	13.761	12.55	0.02	1.18
2	6	13.135	17.074	62,800	8.59	90.290	82.37	0.16	7.76
2	6	17.074	17.678	59,500	10.63	13.117	11.69	0.04	1.39
2	6	17.678	17.812	59,500	10.63	2.910	2.59	0.01	0.31
2	6	17.812	18.588	59,500	10.63	16.853	15.01	0.05	1.79
2	4	18.588	18.888	59,500	8.59	6.515	5.94	0.01	0.56
2	4	18.888	19.550	40,000	21.55	9.665	7.57	0.02	2.08
2	4	19.550	19.565	40,000	21.55	0.219	0.17	0.00	0.05
2	4	19.565	20.765	40,000	21.55	17.520	13.72	0.03	3.78
1	4	20.765	23.974	40,000	21.55	46.851	36.68	0.08	10.10
1	4	23.974	31.842	40,000	21.55	114.873	89.93	0.19	24.76
1	4	31.842	34.460	34,100	21.73	32.585	25.44	0.07	7.08
1	4	34.460	35.845	34,100	21.73	17.238	13.46	0.03	3.75
1	4	35.845	35.870	32,000	21.73	0.292	0.23	0.00	0.06
1	4	35.870	38.184	32,000	21.73	27.028	21.10	0.05	5.87
1	4	38.184	43.332	32,000	21.73	60.129	46.94	0.12	13.07
1	4	43.332	46.303	30,700	23.31	33.292	25.48	0.05	7.76
1	4	46.303	47.740	30,700	23.31	16.102	12.32	0.03	3.75
1	4	47.740	49.413	27,800	23.31	16.976	12.99	0.03	3.96
1	4	49.413	49.830	27,800	21.92	4.231	3.29	0.01	0.93
1	4	49.830	51.240	27,800	21.92	14.307	11.13	0.04	3.14
1	4	51.240	53.118	27,800	21.92	19.056	14.82	0.06	4.18
1	4	53.118	57.322	31,300	19.36	48.029	38.67	0.06	9.30
1	4	57.322	57.843	31,300	19.36	5.838	4.70	0.01	1.13
1	4	57.843	59.431	26,600	19.36	15.418	12.41	0.02	2.99
1	4	59.431	67.106	26,600	23.90	74.517	56.60	0.10	17.81
1	4	67.106	71.000	26,300	23.90	37.380	28.39	0.05	8.93
1	4	71.000	71.721	26,900	25.67	7.079	5.25	0.01	1.82
1	4	71.721	74.729	26,900	21.26	29.534	23.26	0.00	6.28
2	4	81.037	89.480	27,000	16.08	83.206	69.71	0.12	13.38

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
1	4	89.480	93.953	32,400	16.08	52.898	44.31	0.08	8.50
2	4	93.953	94.044	32,400	14.39	1.076	0.91	0.01	0.15
2	4	94.044	94.233	32,400	14.39	2.235	1.89	0.02	0.32
2	4	94.233	96.076	38,200	14.39	25.697	21.74	0.26	3.70
2	4	96.076	96.470	38,200	14.39	5.494	4.65	0.05	0.79
1	4	96.470	97.675	33,800	14.39	14.866	12.58	0.15	2.14
1	4	97.675	104.260	35,400	14.39	85.085	71.99	0.85	12.25
1	4	104.260	109.205	20,800	21.13	37.542	29.24	0.37	7.93
1	4	109.205	109.621	20,800	21.13	3.158	2.46	0.03	0.67
1	4	109.621	110.115	18,300	21.13	3.300	2.57	0.03	0.70
1	4	110.115	112.366	18,300	15.73	15.036	12.67	0.00	2.37
1	4	112.366	115.647	17,900	15.73	21.436	18.06	0.00	3.37
1	4	115.647	120.627	17,900	15.30	32.537	27.39	0.17	4.98
1	4	120.627	120.797	17,900	15.30	1.111	0.94	0.01	0.17
1	4	120.797	128.955	16,300	16.94	48.536	40.11	0.20	8.22
1	4	128.955	136.301	12,700	27.61	34.052	24.57	0.08	9.40
2	4	136.301	137.282	11,000	27.61	3.939	2.84	0.01	1.09
2	4	137.282	137.831	10,100	27.61	2.024	1.46	0.00	0.56
1	4	137.831	146.105	10,100	27.61	30.502	22.01	0.07	8.42
1	4	146.105	148.665	10,100	33.19	9.437	6.30	0.00	3.13
1	4	148.665	158.965	10,100	33.19	37.971	25.37	0.00	12.60
1	4	158.965	160.765	10,700	19.37	7.030	5.62	0.04	1.36
1	4	160.765	171.607	14,000	27.58	55.403	39.82	0.30	15.28
1	4	171.607	173.765	15,300	27.58	12.051	8.66	0.07	3.32
1	4	173.765	176.265	15,300	27.58	13.961	10.04	0.08	3.85
1	4	176.265	180.812	15,300	14.21	25.393	21.63	0.15	3.61
1	4	180.812	184.712	15,300	31.18	21.780	14.95	0.04	6.79
1	4	184.712	186.612	13,500	31.18	9.362	6.43	0.02	2.92
1	4	186.612	190.712	14,900	15.18	22.298	18.65	0.26	3.38
1	4	190.712	191.507	18,100	28.47	5.252	3.75	0.00	1.50
<b>Totals</b>				28,297	20.97	1,912.69	1,568.49	5.88	338.32

TABLE E3. Travel on I 65 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
1	4	0.000	2.018	34,300	30.38	25.26	17.47	0.12	7.68
1	4	2.018	2.048	32,300	30.38	0.35	0.24	0.00	0.11
1	4	2.048	3.410	32,300	30.38	16.06	11.10	0.07	4.88
1	4	3.410	3.910	32,300	30.38	5.89	4.08	0.03	1.79
1	4	3.910	5.979	32,300	39.96	24.39	14.60	0.04	9.75
1	4	5.979	9.211	35,400	39.96	41.76	25.00	0.08	16.69
1	4	9.211	9.711	35,400	39.96	6.46	3.87	0.01	2.58
1	4	9.711	12.711	35,400	39.96	38.76	23.20	0.07	15.49
1	4	12.711	13.102	35,400	39.96	5.05	3.02	0.01	2.02
1	4	13.102	13.711	35,400	39.96	7.87	4.71	0.01	3.14
1	4	13.711	20.539	35,400	28.82	88.22	62.34	0.45	25.43
1	4	20.539	21.582	40,300	28.82	15.34	10.84	0.08	4.42
2	4	21.582	22.069	40,300	28.82	7.16	5.06	0.04	2.06
2	4	22.069	22.349	40,300	28.82	4.12	2.91	0.02	1.19
2	4	22.349	23.049	40,300	30.41	10.30	7.12	0.04	3.13
2	4	23.049	24.911	40,300	30.41	27.39	18.95	0.11	8.33
2	4	24.911	27.987	38,500	30.41	43.23	29.90	0.18	13.15
2	4	27.987	29.015	39,300	30.41	14.75	10.20	0.06	4.48
1	4	29.015	42.890	39,300	27.07	199.03	144.35	0.80	53.88
1	4	42.890	43.307	34,100	27.07	5.19	3.76	0.02	1.41
1	4	43.307	45.935	25,300	27.07	24.27	17.60	0.10	6.57
1	4	45.935	46.747	25,300	27.07	7.50	5.44	0.03	2.03
1	4	46.747	47.538	25,300	47.11	7.30	3.81	0.05	3.44
1	4	47.538	49.835	25,700	47.11	21.55	11.25	0.15	10.15
1	4	49.835	51.631	25,700	47.11	16.85	8.80	0.12	7.94
1	4	51.631	52.427	25,700	47.11	7.47	3.90	0.05	3.52
1	4	52.427	53.956	30,200	47.11	16.85	8.80	0.12	7.94
1	4	53.956	61.132	30,200	43.02	79.10	44.87	0.20	34.03
1	4	61.132	63.700	27,900	43.02	26.15	14.83	0.07	11.25
1	4	63.700	64.151	27,900	43.02	4.59	2.61	0.01	1.98
1	4	64.151	64.450	27,900	43.02	3.04	1.73	0.01	1.31
1	4	64.450	74.622	29,000	32.62	107.67	72.07	0.48	35.12
1	4	74.622	78.661	28,500	32.62	42.02	28.12	0.19	13.70
1	4	78.661	89.383	27,900	27.31	109.19	78.92	0.45	29.82
2	4	89.383	90.153	37,500	27.31	10.54	7.62	0.04	2.88
2	6	90.153	90.793	37,500	27.31	8.76	6.33	0.04	2.39
2	6	90.793	91.130	37,500	27.31	4.61	3.33	0.02	1.26
2	6	91.130	91.341	44,500	27.31	3.43	2.48	0.01	0.94
2	6	91.341	93.299	44,500	29.25	31.80	22.39	0.11	9.30
2	6	93.299	95.317	38,400	29.25	28.28	19.92	0.10	8.27
1	6	95.317	97.478	42,500	41.81	33.52	19.46	0.04	14.02
1	6	97.478	102.308	41,200	41.81	72.63	42.17	0.09	30.37
1	6	102.308	103.308	41,200	35.54	15.04	9.64	0.05	5.35
1	6	103.308	103.951	41,200	35.54	9.67	6.20	0.03	3.44

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
1	6	103.951	115.496	46,000	26.31	193.84	142.22	0.63	50.99
1	6	115.496	116.666	62,400	26.31	26.65	19.55	0.09	7.01
1	6	116.666	118.242	66,700	26.31	38.37	28.15	0.12	10.09
1	6	118.242	118.988	66,700	26.31	18.16	13.33	0.06	4.78
2	6	118.988	121.388	66,700	25.11	58.43	43.65	0.12	14.67
2	6	121.388	123.180	76,900	25.11	50.30	37.57	0.10	12.63
2	6	123.180	123.925	76,900	25.11	20.91	15.62	0.04	5.25
2	8	123.925	125.027	117,000	21.47	47.06	36.89	0.06	10.11
2	8	125.027	125.587	117,000	21.47	23.91	18.75	0.03	5.14
2	8	125.587	126.746	117,000	21.47	49.50	38.80	0.06	10.63
2	8	126.746	126.778	117,000	10.94	1.37	1.22	0.00	0.15
2	8	126.778	127.570	122,000	10.94	35.27	31.38	0.03	3.86
2	8	127.570	128.066	122,000	10.94	22.09	19.65	0.02	2.42
2	8	128.066	128.135	122,000	12.33	3.07	2.68	0.01	0.38
2	8	128.135	128.880	153,000	12.33	41.60	36.31	0.16	5.13
2	6	128.880	129.750	153,000	12.33	48.59	42.40	0.19	5.99
2	6	129.750	130.870	140,000	12.33	57.23	49.95	0.23	7.05
2	6	130.870	131.290	132,000	12.33	20.24	17.66	0.08	2.49
2	6	131.290	131.320	132,000	12.33	1.45	1.26	0.01	0.18
2	6	131.320	132.955	132,000	11.47	78.77	69.48	0.26	9.04
2	6	132.955	135.451	125,000	11.47	113.88	100.44	0.37	13.07
2	6	135.451	135.919	127,000	13.09	21.69	18.82	0.03	2.84
2	6	135.919	136.152	127,000	13.09	10.80	9.37	0.02	1.41
2	4	136.152	136.324	127,000	13.09	7.97	6.92	0.01	1.04
2	4	136.324	136.634	127,000	13.09	14.37	12.47	0.02	1.88
2	4	136.634	137.318	121,000	13.09	30.21	26.21	0.05	3.95
Totals				46,171	30.71	2314.16	1685.78	7.60	620.78

TABLE E4. Travel on I 71 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	4	0.000	4.521	54,700	11.44	90.26	79.68	0.26	10.32
2	4	4.521	4.966	54,700	11.44	8.88	7.84	0.03	1.02
2	4	4.966	5.271	50,600	11.44	5.63	4.97	0.02	0.64
2	4	5.271	9.191	50,600	16.98	72.40	59.95	0.16	12.29
2	4	9.191	11.315	43,000	22.83	33.34	25.67	0.05	7.61
1	4	11.315	15.000	43,000	22.83	57.84	44.54	0.09	13.20
1	4	15.000	17.608	38,500	22.83	36.65	28.23	0.06	8.37
1	4	17.608	21.869	41,000	30.93	63.77	43.95	0.10	19.72
1	4	21.869	22.685	27,000	30.93	8.04	5.54	0.01	2.49
1	4	22.865	23.298	27,000	30.93	4.27	2.94	0.01	1.32
1	4	23.298	23.585	27,000	30.93	2.83	1.95	0.00	0.87
1	4	23.585	24.727	27,000	30.93	11.25	7.76	0.02	3.48
1	4	24.727	25.897	27,000	30.93	11.53	7.95	0.02	3.57
1	4	25.897	28.325	27,000	30.93	23.93	16.49	0.04	7.40
1	4	28.325	30.835	23,000	30.93	21.07	14.52	0.03	6.52
1	4	30.835	31.705	23,000	30.93	7.30	5.03	0.01	2.26
1	4	31.705	33.825	23,400	40.46	18.11	10.72	0.06	7.33
1	4	33.825	38.086	23,400	40.46	36.39	21.54	0.13	14.72
1	4	38.086	38.808	23,400	40.46	6.17	3.65	0.02	2.49
1	4	38.808	53.433	21,900	40.46	116.90	69.19	0.42	47.30
1	4	53.433	61.774	19,300	34.96	58.76	38.14	0.08	20.54
1	4	61.774	69.890	21,800	34.96	64.58	41.92	0.08	22.58
1	4	69.890	77.724	59,100	34.96	70.06	45.47	0.09	24.49
<b>Totals</b>				32,819	31.95	829.96	587.65	1.78	240.53



TABLE E5. Travel on I 75 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
1	4	0.000	0.484	21,800	33.51	3.85	2.54	0.02	1.29
1	4	0.484	3.169	21,800	33.51	21.36	14.08	0.13	7.16
1	4	3.169	10.018	21,800	33.51	54.50	35.90	0.33	18.26
2	4	10.018	10.079	21,800	33.51	0.49	0.32	0.00	0.16
2	4	10.079	10.548	21,800	33.51	3.73	2.46	0.02	1.25
2	4	10.548	11.242	29,300	33.51	7.42	4.89	0.04	2.49
2	4	11.242	11.895	29,300	33.51	6.98	4.60	0.04	2.34
2	4	11.895	12.384	29,300	33.51	5.23	3.45	0.03	1.75
1	4	12.384	24.370	28,500	33.51	124.68	82.15	0.75	41.78
2	4	24.370	27.943	32,900	25.29	42.91	31.88	0.17	10.85
2	4	27.943	28.851	28,700	25.29	9.51	7.07	0.04	2.41
1	4	28.851	29.113	28,700	25.29	2.74	2.04	0.01	0.69
1	4	29.113	31.448	31,200	25.29	26.59	19.76	0.11	6.73
1	4	31.448	33.152	31,200	26.54	19.41	14.23	0.02	5.15
1	4	33.152	38.187	31,200	26.54	57.34	42.05	0.07	15.22
2	4	38.187	40.837	32,900	29.89	31.82	22.26	0.05	9.51
1	4	40.837	45.901	28,700	59.77	53.05	21.29	0.05	31.71
1	4	45.901	49.132	28,700	59.77	33.85	13.58	0.03	20.23
1	4	49.132	50.767	31,200	36.69	18.62	11.74	0.05	6.83
1	4	50.767	56.317	31,200	36.69	63.20	39.86	0.16	23.19
1	4	56.317	58.954	31,200	36.69	30.03	18.94	0.07	11.02
1	4	58.954	62.008	24,400	36.69	27.20	17.15	0.07	9.98
1	4	62.008	65.210	32,900	27.13	38.45	27.92	0.09	10.43
1	4	65.210	71.818	32,900	27.13	79.35	57.63	0.19	21.53
1	4	71.818	73.408	32,900	14.86	19.09	16.18	0.08	2.84
1	4	73.408	74.563	32,900	14.86	13.87	11.75	0.06	2.06
2	4	74.563	75.516	32,900	14.86	11.44	9.70	0.05	1.70
2	4	75.516	78.800	33,800	14.86	40.51	34.33	0.16	6.02
1	4	78.800	86.135	40,400	21.91	108.16	84.28	0.19	23.70
2	4	86.135	86.806	40,400	21.91	9.89	7.71	0.02	2.17
2	4	86.806	87.398	40,400	21.91	8.73	6.80	0.02	1.91
2	4	87.398	89.802	46,500	20.41	40.80	32.34	0.14	8.33
2	4	89.802	90.844	45,700	20.41	17.38	13.78	0.06	3.55
1	4	90.844	94.730	45,700	20.41	64.82	51.38	0.22	13.23
1	4	94.730	97.543	46,800	20.41	48.05	38.09	0.16	9.81
2	4	97.543	97.866	47,400	20.41	5.59	4.43	0.02	1.14
2	4	97.866	98.516	47,400	20.41	11.25	8.91	0.04	2.29
2	4	98.516	100.344	51,300	19.94	34.23	27.22	0.19	6.82
2	4	100.344	103.890	51,300	19.94	66.40	52.79	0.37	13.24
2	4	103.890	106.287	38,500	24.58	33.68	25.34	0.06	8.28
2	6	106.287	107.438	38,500	24.58	16.17	12.17	0.03	3.98
2	6	107.438	108.853	38,500	24.58	19.88	14.96	0.04	4.89
2	6	108.853	109.705	55,300	20.65	17.20	13.61	0.03	3.55
2	6	109.705	110.247	51,600	20.65	10.21	8.08	0.02	2.11

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	6	110.247	111.227	51,600	20.65	18.46	14.61	0.04	3.81
2	6	111.227	112.826	56,900	20.65	33.21	26.28	0.07	6.86
2	6	112.826	115.226	65,800	20.65	57.64	45.62	0.12	11.91
2	6	115.226	116.022	71,800	22.64	20.86	16.11	0.03	4.72
2	6	116.022	117.452	71,800	22.64	37.48	28.93	0.06	8.48
2	4	117.452	117.665	71,800	22.64	5.58	4.31	0.01	1.26
2	4	117.665	117.935	71,800	22.64	7.08	5.46	0.01	1.60
2	6	117.935	120.792	44,900	22.64	46.82	36.15	0.07	10.60
1	6	120.792	124.346	40,600	25.22	52.67	39.35	0.04	13.28
2	6	124.346	125.797	40,600	25.22	21.50	16.06	0.02	5.42
1	6	125.797	129.048	40,600	25.22	48.18	35.99	0.04	12.15
2	6	129.048	130.288	35,300	29.48	15.98	11.22	0.04	4.71
1	6	130.288	132.240	35,300	29.48	25.15	17.67	0.07	7.41
1	6	132.240	134.040	30,200	29.48	19.84	13.94	0.05	5.85
1	6	134.040	135.160	31,300	29.48	12.80	8.99	0.04	3.77
1	6	135.160	136.140	37,900	29.48	13.56	9.52	0.04	4.00
1	6	136.140	136.366	37,900	29.48	3.13	2.20	0.01	0.92
1	6	136.366	136.790	33,500	29.48	5.18	3.64	0.01	1.53
1	6	136.790	137.070	35,500	29.48	3.63	2.55	0.01	1.07
1	4	137.070	143.070	37,900	29.48	83.00	58.30	0.23	24.47
1	4	143.070	143.239	45,400	29.48	2.80	1.97	0.01	0.83
1	4	143.239	144.443	45,400	29.48	19.95	14.01	0.06	5.88
1	4	144.443	166.263	38,500	22.91	306.63	234.48	1.90	70.25
1	4	166.263	169.439	45,400	22.91	52.63	40.25	0.33	12.06
1	4	169.439	172.544	45,400	21.32	51.45	40.36	0.12	10.97
1	4	172.544	172.806	53,300	21.32	5.10	4.00	0.01	1.09
1	4	172.806	173.322	75,400	18.29	14.20	11.45	0.15	2.60
1	6	173.322	173.509	75,400	18.29	5.15	4.15	0.06	0.94
1	6	173.509	174.426	75,400	26.69	25.24	18.47	0.03	6.74
1	6	174.426	174.590	75,400	26.69	4.51	3.30	0.01	1.20
1	6	174.590	174.640	75,400	26.69	1.38	1.01	0.00	0.37
1	8	174.640	175.572	75,400	26.69	25.65	18.77	0.03	6.85
2	8	175.572	176.740	70,500	26.69	30.06	21.99	0.04	8.02
2	8	176.740	178.541	70,500	22.80	46.34	35.25	0.52	10.57
2	8	178.541	183.312	105,000	17.16	182.85	151.30	0.18	31.37
2	6	183.312	184.595	143,000	17.16	66.97	55.41	0.07	11.49
2	6	184.595	184.708	143,000	17.16	5.90	4.88	0.01	1.01
2	6	184.708	184.857	140,000	10.65	7.61	6.79	0.02	0.81
2	6	184.857	185.179	154,000	10.65	18.10	16.13	0.04	1.93
2	6	185.179	186.958	154,000	10.65	100.00	89.12	0.23	10.65
2	6	186.958	187.461	144,000	10.65	26.44	23.56	0.06	2.82
2	6	187.461	187.502	125,000	10.65	1.87	1.67	0.00	0.20
2	6	187.502	188.071	125,000	10.29	25.96	23.24	0.05	2.67
2	6	188.071	188.319	125,000	10.29	11.31	10.13	0.02	1.16
2	6	188.319	190.424	141,000	10.29	108.33	96.98	0.21	11.15
2	6	190.424	190.508	141,000	10.29	4.32	3.87	0.01	0.44

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	6	190.508	191.222	120,000	9.15	31.27	28.37	0.04	2.86
2	6	191.222	191.315	141,000	9.15	4.79	4.34	0.01	0.44
2	6	191.315	191.408	141,000	9.15	4.79	4.34	0.01	0.44
2	6	191.408	191.489	141,000	9.15	4.17	3.78	0.01	0.38
2	6	191.489	191.777	141,000	9.15	14.82	13.45	0.02	1.36
<b>Totals</b>				44,315	26.69	3,102.00	2,355.32	9.75	736.93

TABLE E6. Travel on I 264 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	6	0.000	0.388	40,900	8.61	5.79	5.23	0.07	0.50
2	4	0.388	1.736	40,900	8.66	20.12	18.34	0.04	1.74
2	6	1.736	5.219	52,400	8.66	66.62	60.71	0.13	5.77
2	6	5.219	7.098	52,400	8.66	35.94	32.75	0.07	3.11
2	6	7.098	7.461	57,000	8.66	7.55	6.88	0.02	0.65
2	6	7.461	7.521	59,800	6.49	1.31	1.22	0.00	0.09
2	6	7.521	8.168	52,600	6.49	12.42	11.58	0.03	0.81
2	6	8.168	9.233	88,600	4.25	34.44	32.52	0.45	1.46
2	6	9.233	11.280	88,600	6.25	66.20	61.94	0.12	4.14
2	6	11.280	12.280	105,000	6.25	38.33	35.86	0.07	2.40
2	6	12.280	12.660	123,000	4.58	17.06	16.23	0.05	0.78
2	8	12.660	13.278	124,000	5.02	27.97	26.47	0.09	1.40
2	8	13.278	15.815	156,000	6.70	144.46	134.38	0.40	9.67
2	8	15.815	17.093	180,000	2.46	83.96	81.72	0.18	2.07
2	8	17.093	19.150	160,000	7.18	120.13	111.36	0.14	8.63
2	4	19.150	19.386	160,000	7.18	13.78	12.78	0.02	0.99
2	4	19.386	19.640	139,000	7.18	12.89	11.95	0.01	0.93
2	4	19.640	19.913	133,000	7.18	13.25	12.29	0.02	0.95
2	4	19.913	20.102	138,000	7.18	9.52	8.83	0.01	0.68
2	4	20.102	20.630	115,000	5.81	22.16	20.87	0.01	1.29
2	4	20.630	22.430	77,400	5.81	50.85	47.88	0.02	2.95
2	4	22.430	22.600	73,900	5.81	4.59	4.32	0.00	0.27
2	4	22.600	22.927	58,700	5.81	7.01	6.60	0.00	0.41
Totals				97,551	6.79	816.35	762.71	1.95	51.69

TABLE E7. Travel on I 265 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	4	10.250	11.196	65,700	7.50	22.69	20.89	0.09	1.70
2	4	11.196	11.729	64,500	7.50	12.55	11.56	0.05	0.94
2	4	11.729	13.355	57,600	6.68	34.19	31.71	0.19	2.28
2	4	13.355	16.134	47,600	6.68	48.28	44.79	0.26	3.23
2	4	16.134	17.295	47,300	9.69	20.04	18.04	0.06	1.94
2	4	17.295	22.995	41,500	9.93	86.34	77.31	0.45	8.58
2	4	22.995	23.279	39,800	9.93	4.13	3.69	0.02	0.41
2	4	23.279	25.159	56,100	12.47	38.50	33.59	0.11	4.80
2	4	25.159	25.599	40,300	12.47	6.47	5.65	0.02	0.81
2	4	25.599	25.869	26,000	12.47	2.56	2.24	0.01	0.32
2	4	25.869	26.667	51,600	12.47	15.03	13.11	0.04	1.87
2	4	26.667	27.495	40,300	12.47	12.18	10.63	0.03	1.52
2	4	27.495	29.807	40,300	12.47	34.01	29.67	0.10	4.24
2	4	29.807	30.420	40,300	14.50	9.02	7.70	0.01	1.31
2	4	30.420	32.227	26,000	14.50	17.15	14.64	0.02	2.49
2	4	32.227	34.338	51,600	14.50	39.76	33.94	0.05	5.76
2	4	34.338	34.727	44,200	14.50	6.28	5.36	0.01	0.91
Totals				45,797	10.78	409.16	364.51	1.54	43.11

TABLE E8. Travel on I 275 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	6	0.000	0.670	56900	8.37	13.91	12.71	0.04	1.16
2	6	0.670	0.711	56900	8.37	0.85	0.78	0.00	0.07
2	6	0.711	1.582	56,900	8.37	18.09	16.53	0.05	1.51
2	6	1.582	3.968	41,700	8.11	36.32	33.28	0.09	2.94
2	6	3.968	7.037	25,400	8.11	28.45	26.07	0.07	2.31
2	4	7.037	8.415	24,600	8.11	12.37	11.34	0.03	1.00
1	4	8.415	11.431	24,600	9.94	27.08	24.31	0.08	2.69
1	4	11.431	12.501	23,000	9.94	8.98	8.06	0.03	0.89
1	4	12.501	12.992	23,000	9.94	4.12	3.70	0.01	0.41
1	4	12.992	13.447	23,000	9.94	3.82	3.43	0.01	0.38
1	4	13.447	13.858	23,000	9.94	3.45	3.10	0.01	0.34
2	6	73.061	74.985	60,700	4.17	42.63	40.63	0.22	1.78
2	6	74.985	77.023	61,200	4.17	45.52	43.39	0.24	1.90
2	6	77.023	77.579	82,600	4.17	16.76	15.98	0.09	0.70
2	6	77.579	81.538	82,600	1.49	119.36	117.49	0.09	1.78
2	6	81.538	81.817	89,000	1.49	9.06	8.92	0.01	0.14
2	6	81.817	82.027	86,800	1.49	6.65	6.55	0.00	0.10
2	6	82.027	83.393	82,000	5.54	40.88	38.53	0.09	2.27
2	6	83.393	83.780	82,000	5.54	11.58	10.92	0.03	0.64
Totals				50,154	6.43	449.91	425.70	1.19	23.02

TABLE E9. Travel on I 471 in Kentucky

Rural/ Urban	No. Lanes	Begin Milept.	End Milept.	1996 AADT	1996 % Trucks	1996 VMT (millions)			
						Total	Cars	Buses	Trucks
2	4	0.000	0.128	83,300	3.53	3.89	3.75	0.01	0.14
2	4	0.128	0.729	83,300	3.53	18.27	17.61	0.02	0.64
2	6	0.729	1.745	83,300	6.15	30.89	28.93	0.06	1.90
2	6	1.745	4.643	94,400	5.00	99.85	94.66	0.19	5.00
2	6	4.643	5.016	93,100	5.94	12.68	11.90	0.02	0.75
Totals				90,442	5.09	165.58	156.85	0.30	8.43

TABLE E10. 1996 Travel on Kentucky Interstate Highways

Highway Number	1996 AADT	1996 % Trucks	1996 VMT (millions)			
			Total	Cars	Buses	Trucks
I 24	17,811	24.98	607.04	458.75	2.60	145.68
I 64	28,297	20.97	1,912.69	1,568.49	5.88	338.32
I 65	46,171	30.71	2,314.16	1,685.78	7.60	620.78
I 71	32,819	31.95	829.96	587.65	1.78	240.53
I 75	44,315	26.69	3,102.00	2,355.32	9.75	736.93
I 264	97,551	6.79	816.35	762.71	1.95	51.69
I 265	45,797	10.78	409.16	364.51	1.54	43.11
I 275	50,154	6.43	449.91	425.70	1.19	23.02
I 471	90,442	5.09	165.58	156.85	0.30	0.75
<b>Total</b>	<b>39,652</b>	<b>24.46</b>	<b>10,606.85</b>	<b>8,365.76</b>	<b>32.59</b>	<b>2,200.81</b>