

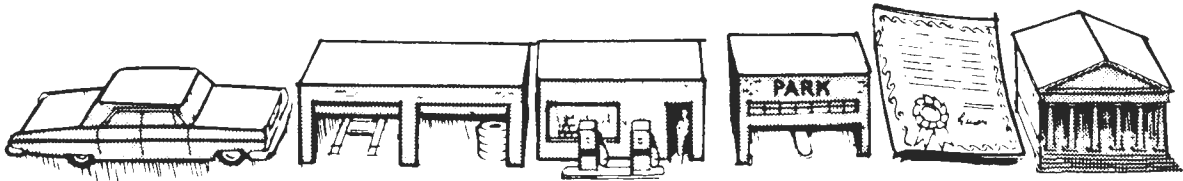
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# COST OF OPERATING AN AUTOMOBILE

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## SUBURBAN BASED OPERATION

### CENTS PER MILE



	ORIGINAL VEHICLE COST DEPRECIATED	MAINTENANCE, ACCESSORIES, PARTS & TIRES	GAS & OIL (EXCLUDING TAXES)	GARAGE, PARKING, & TOLLS	INSURANCE	STATE & FEDERAL TAXES	TOTAL COST
STANDARD SIZE	4.4¢	2.6¢	2.1¢	1.8¢	1.4¢	1.3¢	13.6¢
COMPACT SIZE	2.7¢	2.2¢	1.8¢	1.8¢	1.3¢	1.0¢	10.8¢
SUBCOMPACT SIZE	2.1¢	2.1¢	1.4¢	1.8¢	1.2¢	.8¢	9.4¢

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1972



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
Office of Highway Planning  
Highway Statistics Division  
April 1972

# COST OF OPERATING AN AUTOMOBILE

L. L. Liston and C. L. Gauthier

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## Introduction

American motorists spent more than \$20 billion last year for new automobiles. Many of these new car owners may be aware that, except for buying a home, they will never purchase anything nearly as expensive as their automobiles. But beyond this, they probably have little notion of how much their cars cost to own and operate. Of course, at the time of purchase, they have the choice of buying the size vehicle they wish, and they can choose from seemingly endless lists of optional equipment items, but that is just the beginning. The purchase price is only the first step in a long line of costs that must be paid in moving and maintaining the car during its approximate 100,000 mile, 10-year trip from the assembly line to the junkyard. During this period the standard size car owner will pay \$2,787 for some 7,350 gallons of gasoline. He will pay \$2,147 to keep the vehicle maintained and in repair, \$1,350 to insure it, and over \$1,800 for garaging, parking and tolls. His State and Federal automotive tax bill, most of which goes to support the roads he drives on, will amount to \$1,319—about 9.7 percent of total costs. Many ownership and operation costs for the typical compact and subcompact cars are not comparable to those of the standard size car, because of the assumed items of optional equipment on each car and their effect on costs. However, the automotive tax portions of the costs for each car should be comparable. These taxes total \$1,027 for the compact car, and \$821 for the subcompact car—9.5 percent and 8.7 percent respectively of total costs.

Earlier editions of this report<sup>1</sup> considered costs for only one vehicle, a standard size "big 3" four-door sedan operated from a home in Baltimore, Maryland. The purpose, "to show the various costs in relation to the highway-user taxes paid," was and still is the

objective. However, the growing popularity of compact and subcompact cars has made it desirable to include costs for examples of these automobiles. Differences in operation characteristics and costs between rural use and suburban use are described and explained. The vehicles chosen for study are a standard size "big 3" four-door sedan (table 1), an American-made compact (table 2), and a subcompact (table 3). The choice of the last vehicle presented problems of longevity, and anticipated repairs and maintenance costs, so assumptions concerning these factors had to be made. All assumptions will be discussed later.

The State and Federal tax component of the automobile costs has varied by less than one percentage point during the 20-year period 1950-1970 (10.9 percent in 1950 to 11.4 percent in 1970). The taxes shown in this report for the standard size automobile are 9.7 percent of total costs, down 1.7 percentage points from those in 1970, and is the lowest figure for any analysis. However, all but a negligible amount of this tax reduction was due to the repeal of the Federal excise on new automobiles, effective August 15, 1971. Since highway-user taxes provide the financial support for highways, and the Federal automobile excise has never been available for this purpose, the relative portion of total automotive costs available for highway financing has remained fairly stable. Many local jurisdictions tax motor vehicles and their use in a manner similar to the State registration taxes and motor-fuel taxes. Also, several States levy personal property taxes on motor vehicles. None of these taxes were present in the study area, but any computations of the cost of owning and operating an automobile in an area where such taxes exist would have to include them.

The "Cost of Operating an Automobile" report has been republished as changes in costs and vehicle characteristics have warranted a new study. The most

<sup>1</sup> Studies were published in 1950, 1967, and 1970. Copies of the 1970 study are available, but supplies of the earlier editions have been exhausted.

recent prior edition was issued in February 1970. In text, method, and coverage the current report borrows freely from its predecessors.

## Study Factors and Assumptions

A description of the vehicles chosen for study, the major repairs, the repetitive maintenance operations, the replacement items, the insurance, and other costs that were included in this study are listed in the summary titled "Automobile Operating Costs—Bases for Estimates."

The standard size car considered here is from a different manufacturer than the one used in the 1970 study, so there is a base price difference between the cars. In addition, the general increase in new car prices, adding safety equipment that must be on all new cars, and the inclusion of the air conditioner option group on the 1972 model generally accounts for the price difference between the 1970 and 1972 models.

The costs shown in this report are not taken from records of specific vehicles nor are the amounts of usage, fuel consumption rates, or any other factors necessarily presented as averages. The vehicle and operation cost factors were, however, carefully selected as to probability. Nationwide sales records of the 1971 model standard size car and the compact showed that 70 percent or more had power steering, over 90 percent had automatic transmissions, and 90 percent had radios. In addition, more than 80 percent of the standard size cars had air conditioning. For the subcompacts the number with power steering was negligible, 45-50 percent had automatic transmissions, and over 80 percent had radios. The factors included in this report were selected on the basis of available statistics, discussions with automobile industry personnel, and assistance from service managers or major automobile dealers.

An estimate of car operating costs must include a series of assumptions for tire and battery replacements, wheel alignments, light bulbs, fan belts, lubrications, brake linings, and other repair and maintenance items. The need for repairs has been estimated from discussions of repair experience with car service personnel, and from the authors' knowledge. They include such items as starter repair, carburetor overhaul, replacement of fuel pump, radiator hoses, muffler, tail pipes, and shock absorbers, and what must seem to an owner to be a pretty long list of other repairs. Several of these repairs must be made more than once during the life of the car. No costs were included for repairs or replacements that would have been covered by warranties. Since the standard size vehicle in this study includes features such as disc brakes, and the air conditioner package, much of the repair and replacement work is more difficult and

more costly than similar repair work for the comparable size vehicle in prior studies. The costs of parts and labor are based on 1972 prices although it is probable that prices would change during the 10-year vehicle life.

The assumed vehicle life of 100,000 miles during a 10-year period has been questioned by some persons who believe the time to be too long, and others who believe it to be too short. Vehicle survival data developed on the popular size, popular brand cars show that half of the autos were still on the road at the end of 10 years. This finding appears to be applicable to the compact cars also, but at this writing there is not enough evidence to establish a firm survival rate for the subcompacts.

In this estimate of the costs of owning and operating a car, it has been assumed that each car was bought new, without a trade-in. The intent is to trace each vehicle and its costs through a 10-year life as developed from odometer records of vehicles of these kinds. Usually a vehicle passes through two, three or more owners during its life, but we have not included any change of ownership costs in our figures. Any owner would be unlikely to operate his only vehicle successively fewer miles each year until he drives only 5,700 miles in the tenth year, but a 9-year old car typically is operated fewer miles during the year than a new or relatively new car. Therefore it can be assumed that the older car has become the second or third car in a family, or for some other reason it is operated at a much reduced rate.

Not all cost items are listed in detail in the tables, but sufficient information is included to assist those who wish to make recomputations to fit other geographic areas or other types of operation. The costs are computed for suburban Baltimore, Maryland. Rural operating costs for north central Maryland were also analyzed, but are not shown here because the cost differences, compared to suburban use, were relatively small. If the suburban costs had been computed for Boston, New York, Washington, or San Francisco, they would have been higher, and if they had been computed for Jacksonville, Montgomery or Fort Worth, they would have been lower. Rural running costs in other parts of the United States probably would not differ greatly from those for rural Maryland, but there could be noticeable differences in vehicle registration fees, and in gasoline taxes because of the variance in rates among States. The running costs (gasoline, tires, oil, repairs and maintenance, etc.) for the vehicles in rural operation tend to be lower than for comparable cars in suburban use. This is not unusual since travel is less restricted in the "country." There are fewer traffic control devices to slow or stop vehicles, there is less vehicle congestion, and the opportunity for accidents with other vehicles is less frequent.

Automobile financing charges are not included in the costs shown in this report. Even if an automobile owner buys his car outright, he is foregoing the opportunity to earn interest on the money used for purchase. Complete cost accounting would require that financing costs or an interest lost charge be included as a part of the automobile costs. At the conservative rate of 6 percent this would add about \$260, or nearly 2 cents per mile during the first year of the life of the standard size car. For the compact car the interest lost the first year would cost about 1 cent per mile, and for the subcompact it would be about 9/10th of a cent per mile.

Any arrangements made for off-street storage of a car at the owner's residence is considered to be his garaging cost. It may be an attached or detached garage, a carport, or it may be a paved or gravel surfaced space beside the house. Parking costs include metered curb parking and costs of temporary storage in lots or parking buildings away from the owner's residence.

In some areas of the United States tolls and garaging would cost less than in the study area, but an automobile owner traveling south, or west, or north from Baltimore customarily would encounter major toll routes. Also, he would spend more for garaging and parking than residents of small towns or rural areas. To go to New York City, 185 miles to the north and return, he would pay \$7.90 in tolls. Since our rural area vehicle owners for this study are located within the same toll complex, the toll charges shown for them are somewhat higher than would be experienced by rural residents who do not have high speed toll facilities available to them.

Oddly enough, many automobile owners do not seem to be aware of many of their automobile costs. It is only when a motorist spends a fairly substantial amount for tire replacement, or for major mechanical repairs that he shows much concern about car expense. Otherwise he drives his vehicle and seems to conclude that his trips are costing very little. The average automobile is sold or traded three or more times during its life, usually through dealers. It is the need for repairs that causes many owners to "trade their cars in," and the dealers serve as quality control judges on the used vehicles. They wholesale the ones that require too much attention, and make the repairs on the remainder prior to resale. But whether the automobile is owned by an individual or is being repaired by a dealer for resale, the money is spent and eventually becomes part of the cost of owning and operating the car. Battery and tire replacements, brake linings, and numerous other replacements and repairs are included in the used car reconditioning programs of many dealers. The additional work that is done under dealer warranties does not impose

direct out-of-pocket expenses on the car owner. The costs are submerged in each automobile's purchase price, and no effort was made to separate them.

Numerous factors such as individual driving habits, climate, garage facilities, type of road used, purpose for which the car is used, and plain luck can affect the service life and costs of operating a car. As previously stated, the standard size car appears to have an average life of about 10 years, and the compacts appear to be surviving at very nearly the same rate. The current American subcompacts have been on the market about two years, so there is no survival history on them. However, an odometer check of a limited sample of these subcompacts showed that their first year mileage is above 14,000 miles. Other vehicles that were generally of this size (the early Falcons, Valiants, Corvairs, and Ramblers, as well as many imports) appear to be present on the highways in sufficient numbers to warrant the following assumptions. For ease of comparison among vehicle sizes and uses, all of the study vehicles have been assumed to have a 10-year, 100,000 mile life. It has been assumed that a normal travel pattern would be 14,500 miles in the first year, and a decreasing number of miles each year thereafter until the vehicle is driven only 5,700 miles in its tenth year. These assumptions are reasonably consistent with available travel data. The first year depreciation is fairly high and results in a relatively high 16.0 cents per mile for total costs of ownership and operation for the standard size car in suburban use. The comparable first year cost for the compact is 11.2 cents per mile and for the subcompact, 7.8 cents per mile. The depreciation cost is lower each succeeding year, but the insurance, registration fees, and some of the other fixed charges do not decrease in proportion to the reduction in the amount a car is driven. The result is that these fixed, or relatively inflexible charges, cost more per mile, and tend to cancel a part of the reduction in other costs. Another factor that helps dampen the reduction in depreciation cost is the increase in maintenance and repair costs as the automobile becomes older.

### **Other Applications for Study Data**

The "annual trader" always has a new car but depreciation for a standard size automobile over a 10-year period costs him about \$12,260 (ten times the first year depreciation). The "two-year trader" pays \$10.630 in depreciation (five times the depreciation for the first two years). This is a savings of \$1.630 from the annual trader's costs, and it appears that he can save even more by becoming a "three-year trader." However, after the first year he faces a series of outlays for tire replacement, repairs, and incidentals that begin to offset his savings in depreciation.

The automobile costs given in this report, particularly for the standard size and compact cars, should be useful to a person who is trying to decide how long to keep his car. The greatest cost is in the first year on both total amount and mileage bases. Since it has been assumed that the first year of use will cover 14,500 miles, any difference between this assumption and a person's actual miles of operation would change the annual and per-mile costs. The total vehicle cost-per-mile is lower for the higher mileage drivers, because depreciation in the early years of a car's life is determined more by age than by miles, and because some of the annual or nonrecurring charges, such as garaging and insurance, do not increase in proportion to mileage. A low-mileage driver sustains about the same depreciation, insurance, and garaging costs, but they are distributed over fewer miles and result in a higher cost-per-mile. Most insurance companies charge lower rates for private and recreational uses of vehicles, and higher rates for vehicles used directly for work or in relation to business. In addition, many companies apply a surcharge for high-mileage drivers in both categories. To some degree the purpose for which a car is used, and the circumstances of its use will dictate the vehicle cost pattern. Annual mileage that is composed mainly of long trips on good roads, at reasonable speeds, with the vehicle lightly or normally loaded results in lower costs. On the other hand, mileage composed of driving in heavy traffic, with much starting and stopping, many short trips, and with the vehicle loaded heavily at times, can be costly. Once an owner determines his vehicle-use pattern, he should be able to relate his costs to those shown in this report and decide when it will be most advantageous to him to trade his car. Of course, comfort, dependability, and appearance are important to most car owners, and weigh heavily in the automobile purchasing decision.

The prior report in this series included a paragraph concerning reimbursement for vehicle use. The factors mentioned and the suggestions made are still applicable as follows: If an employee uses his automobile only occasionally and incidentally for business purposes, an amount such as 6 or 7 cents per mile should more than cover his out-of-pocket costs, tire wear, and general wear on the vehicle. But if the extent or type of use affects his insurance rate, or if it subjects the automobile to unusual loads or operating conditions, the reimbursement should be adjusted accordingly. Tolls and parking or storage costs incurred in the course of such use should be paid separately and in full, regardless of per-mile reimbursement. If an employee owns and operates a car in the reasonable expectation that he will need to use it in his employer's behalf, reimbursement on the basis of the employee's overall costs per mile seems fair. However, if the employee's frequency of car

purchases, the type of automobile bought, or other factors of ownership or upkeep are substantially affected by the employer's requirements, the reimbursement should be sufficient to cover all outlays that exceed what the employee would normally spend for his own nonbusiness automobile transportation. For any substantial questions about reimbursement for private automobile use, there are business travel advisory services that can be consulted. These are commercial advisory services that have made studies of costs for specific vehicles and groups of vehicles under various conditions of use.

## Discussion of Costs

When an automobile is operated 100,000 miles, there are 400,000 miles of tire wear. In this report it was assumed that the automobiles would each wear out the original 5 tires and require 11 additional replacements, which would include 7 regular tires and 4 snow tires. If the automobiles are driven with reasonable care, and the wheels are kept properly aligned this number of tires should be adequate for the standard size car. The compact should turn 100,000 miles with usable tread left, and the subcompact should have approximately half the tread depth remaining on its final set of tires.

Depreciation is by far the greatest single cost of owning and operating an automobile, and in the great majority of cases, the age of the car is more important than its mileage in determining its resale or trade-in value. However, even though by far the greatest dollar depreciation in a car's value occurs in its first few years, the fact that newer cars are driven more miles tends to hold down the depreciation on a per-mile basis. For example, consider depreciation for the standard size car in this report. If the car were bought new for \$1,379 and sold or traded at the end of the first year, when it had been driven 14,500 miles, depreciation would be \$1,226. This depreciation cost divided by the 14,500 miles driven the first year amounts to 8.5 cents per mile. If the owner keeps his car two years, and sells or trades it for \$2,253 when it has been driven 27,500 miles, depreciation would total \$2,126, which divided by the 27,500 miles driven the first two years would be 7.7 cents per mile. Year by year, as the car gets older, depreciation decreases, but the outlay for maintenance and repairs rises. As time passes it becomes increasingly difficult and expensive to keep a car in satisfactory operating condition.

The higher speeds possible on modern highways, and the opportunity to sustain those speeds on expressways and limited access routes such as the Interstate System, require well maintained, safe cars. Although added safety features are being incorporated in the highways and in new vehicles, there also must

be a policy of continuous, high-standard maintenance of the vehicles to help make highway travel safe. A charge of \$10.50 an hour or more for shop labor is not unusual, and this is a major factor in the 2.1 cents-per-mile cost for repairs and maintenance for the standard size automobile. One of the claims for buying the compact cars and the subcompacts is the relative simplicity of the vehicles. "Do the minor repairs and replacements yourself," they say, but repair garage experience shows that the public generally is not ready to assume this responsibility. For those motorists who are willing and able to replace their own spark plugs, windshield wiper blades, fan belts, radiator hoses, etc., there are indeed savings to be realized, but when trained mechanics do these jobs, vehicle owners must pay professional wages.

When asked to name their single greatest outlay for automobile transportation, many people say that it is gasoline. This is not unusual, because so many stops are made at gasoline service stations. However, for the standard size car, records show that gasoline is the third highest cost, and is fourth highest for the compact and subcompact. In fact, during the past 30 years the price of gasoline has risen less, relatively, than many of the other costs associated with highway transportation. Gasoline is still one of the best bargains on today's market.

The automobile is continuously exposed to the possibility of damage whether it is on the highway or parked. The large numbers of vehicles on the roads, and the relatively uncontrolled traffic in shopping center parking lots make cars highly susceptible to accident involvement. Controlled crash tests show that vehicles produced in recent years are not able to escape unmarked from any sort of collision. Any automotive designs that appear to contribute unnecessarily to automotive damage will add to repair costs and insurance. A few States have enacted laws specifying deadlines for the manufacture of automobiles with energy absorbing bumpers capable of withstanding impacts up to 5 miles per hour without damage to the vehicle. Additional States and the Federal Government are considering such legislation. Several major insurance company spokesmen have stated that appropriate rate reductions can be expected on these vehicles. With present vehicles it is understandable why the repair costs and insurance rates have risen so high. One insurance executive commented recently that until we can cut down on accidents or until cars are built so they are cheaper to repair, there is not much that can be done about rates.

In the earlier reports the cost of \$100 deductible collision insurance was included, and that coverage has been retained for the first 5 years of the study vehicles' lives. In addition, \$50,000 public liability coverage was assumed together with comprehensive

fire and theft insurance, and protection against uninsured motorists for the full 10 years. If an owner is judged "at fault" in any accident during the first 5 years, the first \$100 damage to his automobile is out-of-pocket cost to him, but from the 6th through the 10th years he must pay the entire cost for repairing his automobile. Accidents could, therefore, increase the cost of owning and operating a vehicle above the amounts shown in the accompanying tables.

Previous editions of this report used insurance rates for Baltimore City, while suburban rates are shown in the current report. If Baltimore City rates had been included here, insurance costs would have been 11 percent higher than those shown in the 1970 study for a comparable standard size car. A part of the increase in insurance costs is because of the general increase in prices, but the remainder can be traced to the increased exposure of vehicles to accidents.

The quality of the roads—grades, surfaces, curves—has been improved substantially in recent years. The Interstate Highway System is more than three-quarters complete, and these roads are more than living up to the expectations for them. Highway authorities point out that the newer highways of the Interstate System design provide opportunity for greater speed and comfort to the motorist, with greater safety. Accident records show that the Interstate System accident rate is about half that of the remainder of the primary highways in the United States. Savings in accident costs from the Interstate System alone are counted in billions of dollars.

The development of local shopping centers, suburban residential areas, and employment centers, as well as the dispersal of recreational opportunities has made the automobile very important in the life pattern of many Americans. Sales records of new vehicles show that there is increased willingness to spend money for automatic transmissions, air conditioners, power steering and many other items of optional equipment. The lack of adequate roads can cause car running costs to rise. When traffic is not free flowing, there is greater fuel consumption, higher fuel cost, more pollutants are released into the air, there is greater opportunity for accidents, and there is much higher per-mile-wear on engine parts, brakes, tires, etc. So the problem is to maintain an adequate highway system that will provide safe, satisfactory transportation, and will save money on operating and maintenance costs. However, putting highway costs and taxes into proper perspective is difficult at times. *Highway-user taxes are the major source of revenues for highway building and maintenance. So the motorist is, in a very real sense, paying for the roads that he is using. Taxes never have been popular, but the motorist should know that only 9.7 cents of the vehicle owning and operating dollar goes to pay for his roads.*

During the first year of operation the three study cars would have daily owning and operating costs of \$6.37 (standard size), \$4.44 (compact), and \$3.09 (subcompact). In the second year daily costs would drop by \$1.45 for the standard size car to \$4.92; by 80 cents to \$3.64 for the compact; and by 31 cents to \$2.78 for the subcompact. The daily cost differences narrow even more the third year, and by the 5th year daily costs are computed to be \$3.69 and \$3.04 for the standard size car and the compact respectively, a difference of only 65 cents per day. The costs for these cars would be relatively close during the 5th through the 8th years, so the economic ad-

vantages of having a small car during that time would not be great. Other considerations such as parking convenience and maneuverability in traffic, or the ability to transport large numbers of persons or bulky materials might influence the choice of the vehicle owned.

The bases for estimating the operating costs for each of the study automobiles follow, in modified tabular form, in order to emphasize the factors that differ and those that are the same for the three vehicles. The annual costs and per mile costs, shown in tables 1, 2, and 3 are self explanatory.

AUTOMOBILE OPERATING COSTS - BASES FOR ESTIMATES

ITEM	STANDARD SIZE AUTOMOBILE	COMPACT SIZE AUTOMOBILE	SUBCOMPACT SIZE AUTOMOBILE
Automobile Description	1972 model 4-door sedan Equipped with: V-8 engine, automatic transmission, power steering and brakes, air conditioning, tinted glass, radio, clock, white-wall tires, and body protective molding.	1972 model 2-door sedan Equipped with: 6 cylinder engine, automatic transmission, power steering, radio, and body protective molding.	1972 model 2-door sedan Equipped with: standard equipment plus radio and body protective molding.
Repairs and Maintenance	Includes routine maintenance such as lubrications, repacking wheel bearings, flushing cooling system, and aiming headlamps; replacement of minor parts such as spark plugs, fan belts, radiator hoses, distributor cap, fuel filter, and pollution control filters; minor repairs such as brake jobs, water pump, carburetor overhaul and universal joints; and major repairs such as a complete "valve job."		
Replacement Tires	Purchase of 7 new regular tires and 4 new snow tires during the lives of the cars was assumed.		
Accessories	Purchase of floor mats the first year, seat covers the sixth year, and miscellaneous items totaling \$2.00 per year was assumed.		
Gasoline	Consumption rate of 13.60 miles per gallon was used.	Consumption rate of 15.97 miles per gallon was used.	Consumption rate of 21.43 miles per gallon was used.
Oil	Consumption was associated with gasoline consumption at a rate of 1 gallon of oil for every 186 gallons of gasoline.	Consumption was associated with gasoline consumption at a rate of 1 gallon of oil for every 166 gallons of gasoline.	Consumption was associated with gasoline consumption at a rate of 1 gallon of oil for every 135 gallons of gasoline.
Insurance	Coverage includes \$50,000 combined public liability (\$15,000/\$30,000 bodily injury, and \$5,000 property damage), \$1,000 medical payments, uninsured motorist coverage, and full comprehensive coverage for the 10-year period. Deductible collision insurance was assumed for the first 5 years (\$100 deductible).		
Garaging, Parking, and Tolls	Includes monthly charges of \$10.00 for garage rental or indirect cost of the owners garaging facility; plus parking fee average of \$54.00 per year, and toll average of \$6.94 per year, both of which were assigned in proportion to annual travel.		
Taxes	Includes Federal excise taxes on tires (10 cents per pound), lubricating oil (6 cents per gallon), and gasoline (4 cents per gallon); plus the Maryland tax on gasoline (7 cents per gallon), titling tax (4 percent of retail price), and registration fee (\$20.00 for 3,700 pounds or less shipping weight, or \$30.00 for vehicles over 3,700 pounds).		



TABLE 1 - ESTIMATED COST OF OPERATING A STANDARD SIZE 1972 MODEL AUTOMOBILE 1/

Office of Highway Planning  
Highway Statistics Division

(Total costs in dollars, costs per mile in cents)

ITEM	FIRST YEAR (14,500 miles)		SECOND YEAR (13,000 miles)		THIRD YEAR (11,500 miles)		FOURTH YEAR (10,000 miles)		FIFTH YEAR (9,900 miles)			
	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE		
Costs Excluding Taxes:												
Depreciation	1,226.00	8.46	900.00	6.92	675.00	5.87	500.00	5.00	376.00	3.80		
Repairs and Maintenance	81.84	.56	115.37	.89	242.65	2.11	296.09	2.96	275.54	2.78		
Replacement Tires	17.90	.12	16.05	.12	23.72	.21	44.40	.44	43.95	.44		
Accessories	3.21	.02	3.08	.02	2.96	.02	2.83	.03	2.82	.03		
Gasoline	286.75	1.98	257.16	1.98	227.58	1.98	197.72	1.98	195.83	1.98		
Oil	11.25	.08	11.25	.09	12.00	.10	12.00	.12	12.75	.13		
Insurance 2/	164.00	1.13	156.00	1.20	156.00	1.36	147.00	1.47	147.00	1.49		
Garaging, Parking, Tolls, etc.	208.36	1.44	199.22	1.53	190.08	1.65	180.94	1.81	180.33	1.82		
Total	1,999.31	13.79	1,658.13	12.75	1,529.99	13.30	1,380.98	13.81	1,234.22	12.47		
Taxes and Fees:												
State:												
Gasoline	74.62	.51	66.92	.52	59.22	.52	51.45	.51	50.96	.52		
Registration	30.00	.21	30.00	.23	30.00	.26	30.00	.30	30.00	.30		
Titling	177.15	1.22	-	-	-	-	-	-	-	-		
Subtotal	281.77	1.94	96.92	.75	89.22	.78	81.45	.81	80.96	.82		
Federal:												
Gasoline	42.64	.30	38.24	.30	33.84	.29	29.40	.30	29.12	.30		
Oil 3/	.22	-	.22	-	.24	-	.24	-	.26	-		
Tires	1.38	.01	1.24	.01	1.82	.02	3.42	.03	3.39	.03		
Subtotal	44.24	.31	39.70	.31	35.90	.31	33.06	.33	32.77	.33		
Total Taxes	326.01	2.25	136.62	1.06	125.12	1.09	114.51	1.14	113.73	1.15		
Total of All Costs	2,325.32	16.04	1,794.75	13.81	1,655.11	14.39	1,495.49	14.95	1,347.95	13.62		
ITEM	SIXTH YEAR (9,900 miles)		SEVENTH YEAR (9,500 miles)		EIGHTH YEAR (8,500 miles)		NINTH YEAR (7,500 miles)		TENTH YEAR (5,700 miles)		TOTALS AND AVERAGES FOR TEN YEARS (100,000 miles)	
	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE
Costs Excluding Taxes:												
Depreciation	259.00	2.61	189.00	1.99	121.00	1.42	85.00	1.13	48.00	.84	4,379.00	4.38
Repairs and Maintenance	292.54	2.95	397.56	4.19	171.82	2.02	244.33	3.26	29.17	.51	2,146.91	2.14
Replacement Tires	45.44	.46	50.69	.53	62.79	.74	52.80	.70	42.11	.74	399.85	.40
Accessories	8.57	.09	8.30	.09	7.65	.09	6.97	.09	5.79	.10	52.18	.05
Gasoline	195.83	1.98	188.03	1.98	168.13	1.98	148.22	1.98	112.71	1.98	1,977.96	1.98
Oil	13.50	.14	13.50	.14	13.50	.16	12.00	.16	6.75	.12	118.50	.12
Insurance 2/	116.00	1.17	116.00	1.22	116.00	1.37	116.00	1.55	116.00	2.04	1,350.00	1.35
Garaging, Parking, Tolls, etc.	180.33	1.82	177.89	1.87	171.80	2.02	165.71	2.21	154.74	2.71	1,809.40	1.81
Total	1,111.21	11.22	1,140.97	12.01	832.69	9.80	831.03	11.08	515.27	9.04	12,233.80	12.23
Taxes and Fees:												
State:												
Gasoline	50.96	.52	48.93	.51	43.75	.52	38.57	.52	29.33	.51	514.71	.51
Registration	30.00	.30	30.00	.32	30.00	.35	30.00	.40	30.00	.53	300.00	.30
Titling	-	-	-	-	-	-	-	-	-	-	177.15	.18
Subtotal	80.96	.82	78.93	.83	73.75	.87	68.57	.92	59.33	1.04	991.86	.99
Federal:												
Gasoline	29.12	.29	27.96	.30	25.00	.29	22.04	.29	16.76	.29	294.12	.30
Oil 3/	.27	-	.27	-	.27	-	.24	-	.14	-	2.37	-
Tires	3.50	.04	3.90	.04	4.84	.06	4.07	.06	3.24	.06	30.80	.03
Subtotal	32.89	.33	32.13	.34	30.11	.35	26.35	.35	20.14	.35	327.29	.33
Total Taxes	113.85	1.15	111.06	1.17	103.86	1.22	94.92	1.27	79.47	1.39	1,319.15	1.32
Total of All Costs	1,225.06	12.37	1,252.03	13.18	936.55	11.02	925.95	12.35	594.74	10.43	13,552.95	13.55
<p>1/ This estimates covers the total costs of a fully equipped, medium priced, standard size, 4-door sedan, purchased for \$4,379, operated 100,000 miles over a 10-year period, then scrapped. Baltimore area prices, considered to be in the middle range, were used.</p> <p>2/ Previous editions of this study used insurance rates designated for Baltimore city. The rates shown above are for the Baltimore suburbs, and consequently are less than the rates presented in the previous study. If the Baltimore city rates had been used in this study, the insurance costs would have been higher. (For example, the first year would have been \$232).</p> <p>3/ Where costs per mile were computed to be less than 1/20 cent, a dash (-) appears in the column.</p>												

TABLE 2 - ESTIMATED COST OF OPERATING A COMPACT SIZE 1972 MODEL AUTOMOBILE 1/

Office of Highway Planning  
Highway Statistics Division

(Total costs in dollars, costs per mile in cents)

ITEM	FIRST YEAR (14,500 miles)		SECOND YEAR (13,000 miles)		THIRD YEAR (11,500 miles)		FOURTH YEAR (10,000 miles)		FIFTH YEAR (9,900 miles)			
	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE		
<b>Costs Excluding Taxes:</b>												
Depreciation	674.00	4.65	519.00	3.99	394.00	3.42	305.00	3.05	243.00	2.46		
Repairs and Maintenance	79.41	.55	107.14	.83	170.61	1.48	218.90	2.19	240.27	2.43		
Replacement Tires	15.30	.11	13.71	.11	12.13	.11	34.27	.34	33.92	.34		
Accessories	3.21	.02	3.08	.02	2.96	.03	2.83	.03	2.82	.03		
Gasoline	244.25	1.68	218.97	1.69	193.68	1.69	168.39	1.68	166.78	1.68		
Oil	10.50	.07	10.50	.08	11.25	.10	11.25	.11	12.75	.13		
Insurance	155.00	1.07	147.00	1.13	147.00	1.28	140.00	1.40	140.00	1.41		
Garaging, Parking, Tolls, etc.	208.36	1.44	199.22	1.53	190.08	1.65	180.94	1.81	180.33	1.82		
<b>Total</b>	<b>1,390.03</b>	<b>9.59</b>	<b>1,218.62</b>	<b>9.38</b>	<b>1,121.71</b>	<b>9.76</b>	<b>1,061.58</b>	<b>10.61</b>	<b>1,019.88</b>	<b>10.30</b>		
<b>Taxes and Fees:</b>												
<b>State:</b>												
Gasoline	63.56	.44	56.98	.44	50.40	.44	43.82	.44	43.40	.44		
Registration	20.00	.14	20.00	.15	20.00	.17	20.00	.20	20.00	.20		
Titling	109.86	.75	-	-	-	-	-	-	-	-		
Subtotal	193.42	1.33	76.98	.59	70.40	.61	63.82	.64	63.40	.64		
<b>Federal:</b>												
Gasoline	36.32	.25	32.56	.25	28.80	.25	25.04	.25	24.80	.25		
Oil 2/	.21	-	.21	-	.22	-	.22	-	.26	-		
Tires	1.17	.01	1.05	.01	.92	.01	2.61	.03	2.59	.03		
Subtotal	37.70	.26	33.82	.26	29.94	.26	27.87	.28	27.65	.28		
<b>Total Taxes</b>	<b>231.12</b>	<b>1.59</b>	<b>110.80</b>	<b>.85</b>	<b>100.34</b>	<b>.87</b>	<b>91.69</b>	<b>.92</b>	<b>91.05</b>	<b>.92</b>		
<b>Total of All Costs</b>	<b>1,621.15</b>	<b>11.18</b>	<b>1,329.42</b>	<b>10.23</b>	<b>1,222.05</b>	<b>10.63</b>	<b>1,153.27</b>	<b>11.53</b>	<b>1,110.93</b>	<b>11.22</b>		
ITEM	SIXTH YEAR (9,900 miles)		SEVENTH YEAR (9,500 miles)		EIGHTH YEAR (8,500 miles)		NINTH YEAR (7,500 miles)		TENTH YEAR (5,700 miles)		TOTALS AND AVERAGES FOR TEN YEARS (100,000 miles)	
	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE
<b>Costs Excluding Taxes:</b>												
Depreciation	194.00	1.96	152.00	1.60	103.00	1.21	73.00	.97	39.00	.68	2,696.00	2.70
Repairs and Maintenance	268.81	2.72	412.04	4.34	177.27	2.09	78.95	1.05	31.10	.55	1,784.50	1.79
Replacement Tires	38.45	.39	36.89	.39	61.53	.72	54.29	.73	41.27	.72	341.77	.34
Accessories	8.57	.09	8.30	.09	7.65	.09	6.97	.09	5.79	.10	52.18	.05
Gasoline	166.78	1.68	160.06	1.69	143.11	1.69	126.43	1.69	96.03	1.68	1,684.44	1.68
Oil	12.75	.13	12.75	.13	12.75	.15	12.00	.16	6.75	.12	113.25	.11
Insurance	114.00	1.15	114.00	1.20	114.00	1.34	114.00	1.52	114.00	2.00	1,299.00	1.30
Garaging, Parking, Tolls, etc.	180.33	1.82	177.89	1.87	171.80	2.02	165.71	2.21	154.74	2.72	1,803.40	1.81
<b>Total</b>	<b>983.69</b>	<b>9.94</b>	<b>1,073.93</b>	<b>11.31</b>	<b>791.11</b>	<b>9.31</b>	<b>631.35</b>	<b>8.42</b>	<b>488.68</b>	<b>8.57</b>	<b>9,700.58</b>	<b>9.78</b>
<b>Taxes and Fees:</b>												
<b>State:</b>												
Gasoline	43.40	.44	41.65	.44	37.24	.44	32.90	.44	24.99	.44	438.34	.44
Registration	20.00	.20	20.00	.21	20.00	.23	20.00	.26	20.00	.35	200.00	.20
Titling	-	-	-	-	-	-	-	-	-	-	109.86	.11
Subtotal	63.40	.64	61.65	.65	57.24	.67	52.90	.70	44.99	.79	747.20	.75
<b>Federal:</b>												
Gasoline	24.80	.25	23.80	.25	21.28	.25	18.80	.25	14.28	.25	250.48	.25
Oil 2/	.26	-	.26	-	.26	-	.24	-	.13	-	2.27	-
Tires	2.93	.03	2.81	.03	4.69	.06	4.15	.06	3.15	.06	26.07	.03
Subtotal	27.99	.28	26.87	.28	26.23	.31	23.19	.31	17.56	.31	274.72	.28
<b>Total Taxes</b>	<b>91.39</b>	<b>.92</b>	<b>88.52</b>	<b>.93</b>	<b>83.47</b>	<b>.98</b>	<b>76.09</b>	<b>1.01</b>	<b>62.55</b>	<b>1.10</b>	<b>1,027.02</b>	<b>1.03</b>
<b>Total of All Costs</b>	<b>1,075.08</b>	<b>10.86</b>	<b>1,162.45</b>	<b>12.24</b>	<b>874.58</b>	<b>10.29</b>	<b>707.44</b>	<b>9.43</b>	<b>551.23</b>	<b>9.67</b>	<b>10,577.60</b>	<b>10.81</b>
<p>1/ This estimate covers the total costs of a medium priced, compact size, 2-door sedan, purchased for \$2,696, operated 100,000 miles over a 10-year period, then scrapped. Baltimore area prices, considered to be in the middle range, were used.</p> <p>2/ Where costs per mile were computed to be less than 1/20 cent, a dash (-) appears in the column.</p>												

TABLE 3 - ESTIMATED COST OF OPERATING A SUBCOMPACT SIZE 1972 MODEL AUTOMOBILE 1/

Office of Highway Planning  
Highway Statistics Division

(Total costs in dollars, costs per mile in cents)

ITEM	FIRST YEAR (14,500 miles)		SECOND YEAR (13,000 miles)		TOTALS AND AVERAGES FOR TEN YEARS (100,000 miles)	
	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE	TOTAL COST	COST PER MILE
Costs Excluding Taxes:						
Depreciation	310.00	2.14	285.00	2.19	2,064.00	2.07
Repairs and Maintenance	76.15	.53	114.59	.88	1,775.71	1.78
Replacement Tires	13.98	.10	12.53	.10	312.29	.31
Accessories	3.21	.02	3.08	.02	52.18	.05
Gasoline	181.84	1.25	163.02	1.25	1,255.15	1.25
Oil	10.50	.07	9.75	.08	103.50	.10
Insurance	145.00	1.00	140.00	1.08	1,251.00	1.25
Garaging, Parking, Tolls, etc.	208.36	1.44	199.22	1.53	1,809.40	1.81
Total	949.04	6.55	927.19	7.13	8,623.23	8.62
Taxes and Fees:						
State:						
Gasoline	47.32	.33	42.42	.33	326.62	.33
Registration	20.00	.14	20.00	.15	200.00	.20
Titling	84.57	.58	-	-	84.57	.08
Subtotal	151.89	1.05	62.42	.48	611.19	.61
Federal:						
Gasoline	27.04	.18	24.24	.19	186.64	.19
Oil 2/	.21	-	.19	-	2.07	-
Tires	.94	.01	.84	.01	20.90	.02
Subtotal	28.19	.19	25.27	.20	209.61	.21
Total Taxes	180.08	1.24	87.69	.68	820.80	.82
Total of All Costs	1,129.12	7.79	1,014.88	7.81	9,444.03	9.44
<p>1/ This estimate covers the total costs of a low priced, subcompact size, 2-door sedan, purchased for \$2,064, operated 100,000 miles over a 10-year period, then scrapped. Baltimore area prices, considered to be in the middle range, were used. Since cost data for American made subcompacts does not exist past the second year, only the first, second, and estimated ten-year totals are shown.</p> <p>2/ Where costs per mile were computed to be less than 1/20 cent, a dash (-) appears in the column.</p>						

