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MOTOR FLEET OPERATION

E. I. HOCKADAY

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The police administrator often is unaware of the detailed operation of his motor fleet. He is satisfied if the personnel are equipped with a relatively good automobile and the fleet operates so that he receives few or no complaints from his men. He rationalizes that patrol cars are a necessary tool and that the cost has always been high.

Little does he realize how high those costs actually are, and few administrators are aware that the cost of operation can be cut, sometimes considerably, and often with greater efficiency. There are many and varied methods of accounting in fleet operation. No two police agencies seem to use exactly the same system or interpret the figures alike. It is virtually impossible to compare the records of one department with those of another; therefore, it is not at all surprising that the administrator is not well informed concerning the cost of operation of his fleet. Due to the wide variation in fleet record systems he has no available standards for comparison.

Industry, always more cost-conscious than government, has taken the initiative in economy of fleet operation. For years large industrial fleet operators as International Shoe Company and many others have realized that a small saving here and there amounts to quite a sum eventually, and that economy can mean the difference between profit and loss.

Unlike commercial fleet owners the police administrator has not been forced to continually analyze his fleet operation to effect economy. In the past the public purse has opened rather liberally for many departments, and it has not been necessary to cut costs to a minimum. The administrator has been able to show the need of his enforcement officers to be equipped with a powerful and dependable vehicle which is costly to buy

and maintain. The public has been helpful to the administrator in two obvious ways—first, by purchasing powerful and expensive cars themselves; and second, by costly operation of their own vehicles, largely through lack of knowledge of the methods by which they can economize.

The honeymoon is approaching an end. The public is becoming quite cost-conscious as evidenced by the scramble to buy and produce compact cars. In 1959 foreign compacts took nearly 10 per cent of the domestic market. The surge in sales of Ramblers, Studebakers, and the compacts of the big three, Ford, Chrysler, and General Motors, have surpassed all expectations. Ford recently doubled its capacity to produce Falcons and will build 500,000 units instead of the 250,000 units originally planned. Chrysler's Valiant and Chevrolet's Corvair have experienced similar sales increases with resultant revision of production figures. Mercury plans soon to put on the market a small compact, and there are well-founded reports that other manufacturers rapidly will follow suit.

All down the line from our National Congress to the small city council there is a stampede to get on the no-increase-in-taxes bandwagon. Though it is an election year when the politicians register pain and horror if tax increases are mentioned, there seems to be a definite movement toward greater efficiency in government. It is so pronounced that some services have had to be curtailed or temporarily halted, as for example, the federal road program.

The fact that industry has paved the way, coupled with the economy-mindedness of the public and legislators, makes it imperative that the police administrator study his expenditures. He is morally responsible to economize where he can, and he is

somewhat limited as to areas where costs can be cut. With practically a steady rise in the cost of living it is impossible to cut salaries of the personnel, and most administrators need more, rather than fewer, employees. Many of the other items of his budget are fixed expenditures and are relatively small amounts so that any saving therein would be negligible. The cost of operation, maintenance, and replacement of the motor fleet ranks second to salaries of personnel in most state and city police budgets. As the appropriation for salaries cannot be reduced without discharging personnel, the only avenue open to the administrator for economies of any appreciable amount is in his vehicle fleet.

The first reaction of administrators is to maintain that their fleet operates economically and efficiently now. They deny that the cost of operation can be reduced appreciably without impairing its adequacy and efficiency. Their reaction is a normal psychological one—resentment as to any inference other than the greatest efficiency on their part as administrators. This article is not meant to question their efficiency or ability. Their duties are many and varied. It is very probable that they have not had time to make a study of their fleet operation, and if they have, they are one of the pioneers in this field. A thorough study will no doubt be quite revealing, but if they are die-hards and still maintain a saving cannot be effected, they should not be so foolish as to let one of their men make such a study and offer him in salary all the money he is able to save. Of course, he will need the administrator's full support and cooperation, but at the end of a year they are likely to find that he made more money than they. Before forming a negative opinion, remember that a closed mind is just like a parachute, it's of no value until it's opened.

We buy transportation, not automobiles. We are inclined to think of our fleet as so many cars of one make or another. When replaced we consider what it costs to buy or trade for a new vehicle. Thus our mind is conditioned to buying cars, when it actually should be trained to think in terms of mileage. The only common denominator of fleet operation is cost per mile. Cost per mile is made up of three major factors—operation, maintenance, and replacement. When referring to cost per mile transportation all the major factors must be included, one factor cannot be quoted

independently without clearly distinguishing it from the whole.

Record systems should be so designed as to give the administrator a detailed picture of the various expenditures that make up the total cost per mile. He should be able to independently determine for each unit as well as the entire fleet or group subdivision the cost of gasoline, oil, chassis lubrication, wash, tires, and mechanical repairs and servicing, which may be further broken down as to generators, batteries, carburetors, mufflers, cooling system, motor overhaul, et cetera.

The records maintained by the personnel in charge of the fleet are primarily of three kinds.

1. The cost of any repairs that must be made on the vehicle to condition it for trade or sale. These costs should be added as a supplement to the cost record periodically submitted by the officer to whom the vehicle was assigned as he should have maintained the vehicle in good condition. Charging such costs to his record discourages the officer neglecting proper care of his vehicle and enables the administrator or supervisor to detect those individuals whose cost of operation is high.
2. The actual cost of replacing the used car. This is the cost of the new car, less the allowance for trade-in or sale of the old vehicle.
3. Salaries of employees whose duties are acquiring, maintaining, replacing, delivery and pickup of the new and used cars, and keeping of all records pertaining to the fleet operation. Care must be taken not to duplicate costs. For example—if part of a mechanic's duties are to service and repair cars of the patrol force, the estimated costs on a time basis should be charged to the particular unit serviced. The cost of this portion of his salary should not be duplicated in any other accounting. A simpler method of determining costs would be to total all personnel salaries and expenses under one account, but it has the disadvantage of not charging all the costs to those officers who have their car serviced and repaired by the departmental mechanic.

The driver is the primary factor in economy of operation and maintenance. He is the one who can effect a saving or knock any program of economy into a cocked hat. Management must provide the incentive for the driver to economize. This can be done through training and supervision. City and state departments have been very negligent

in conducting any driver training program for their employees. The California Highway Patrol was among the first to establish such a program, but the training is designed primarily to test and improve the skill of the recruit, and it has paid off for them in accident prevention as they have one of the lowest records in the nation. They and other departments are to be commended for their forward progress as few agencies are this advanced. Most applicants for law enforcement positions are assumed to be capable of driving a motor vehicle, and in the past very little training has been given them. Rarely is any mention made of economy of operation, and only occasionally is any stress placed on the care and maintenance of motor equipment. A good comprehensive training program is necessary to effect economy and efficiency in the fleet.

The replacement cost in fleet operation is a direct responsibility of administration, and any savings effected is dependent upon management to drive a hard bargain with the dealer, so to speak. This is best accomplished through competitive bidding and by acquiring a favorable warranty policy.

The Federal Government operates a fleet of 40,000 vehicles, and if one mill per mile can be cut in operating cost a saving of a half million dollars will result. One mill per mile means a saving of \$1000 for each million miles of operation. Multiplying the number of million miles your fleet is operated by \$1000 will give you an idea of how much money can be saved for each mill cut from the cost per mile. Your reaction as of this moment is, "So far you have made some extravagant claims but haven't saved a dime." True! But you must have an open mind and give your fullest cooperation.

A veteran fleet manager for a New England insurance company claimed he saved \$600 a year for each unit in operation by a program of preventative maintenance, economy driving, and a sustained program of accident prevention. The manager of a west coast telephone company, through a program of economy operation, was able to save ten per cent in fuel consumption on his fleet of 4000 vehicles. Assuming that his average cost of fuel was thirty cents a gallon (a low estimate) and that he averaged fifteen miles to the gallon, the cost per mile would be two cents, and a ten per cent saving would represent 2 mills per mile.

Above are examples of savings effected by some fleet managers. If they can do it, why can't you? The answer is, you can if you make an honest effort. Very probably your savings will not be as great, but they might well be, as you have above average personnel to work with and better control and supervision over them.

DRIVER'S RESPONSIBILITY

The place to start any economy in fleet operation is with the driver. We cannot stress this fact enough, and must strongly impress it upon all personnel who operate fleet vehicles. He must be made to feel that he is a necessary part of the program and provide him with incentive to do his best to economize successfully. There are probably many ways to stimulate incentive and interest of your personnel, and only the most obvious are referred to here.

1. Train all drivers in techniques of driving that insure maximum economy.
2. Create a challenge to the driver to continually better his own record of economy. Provide a simple ruled form with columns for the date; speedometer reading to the tenth of a mile; amount of gas to the tenths of a gallon; the number of miles traveled, which is the difference of the speedometer readings at each time the tank is filled; the number of miles per gallon obtained by dividing the number of gallons and tenths into the number of miles traveled; and perhaps a column for remarks, as such a record can be quite revealing. The officer may want to make notations as to the driving conditions, if on urban or rural highways, the climate, when the motor was tuned, et cetera.

Date	Spdmtr	Gas	Traveled	MPG	Remarks
1-26	11029.3	12.2	130.6	10.7	Motor needs tuneup

3. Develop competition among individuals or groups for economy of operation. Beware of developing such a program to the point safety of operation would be impaired. This is not likely but could happen. Recognize the careful and economical driver by department commendation or appropriate reward, but do not neglect the costly driver who needs training or at least counselling. If possible, use any saving to the benefit of the department in purchase of more and better equipment which need not be motor vehicles. Keep

your personnel informed of these plans and how a saving will benefit them. The taxpayer receives the benefit of the saving if used wisely through greater efficiency of the department and higher morale among the personnel.

4. Establish procedures that help the driver to approach a minimum cost of operation. Perhaps it would be economical for your mechanics to service the vehicles even if necessary for them to travel at departmental expense, or management can provide the officer with a list showing factory estimated cost of repairs so that he will be able to determine if he is being overcharged. Keep your officer informed as to the warranty policy and any changes that may be made from time to time. The driver who is trying to economize will appreciate help from administration.

TRAINING FOR ECONOMY

The national average miles per gallon is 14.2. The average for your fleet should equal or better that. Your drivers are far above the average in ability. Granted—police vehicles are equipped with powerful engines which consume fuel at a rapid rate, but now you are rationalizing or taking the negative attitude. Do not say it can not be done, and waste time thinking of all the reasons why. Rather, take the positive position and figure out how it *can* be done.

Some of the driving habits that waste gasoline and result in high cost of operation are:

1. Fast starts. A fast start is necessary when apprehending a violator but we are prone to develop a habit of always starting with a burst of speed. There is no place on a good police force for the driver who tries to stick his foot in the carburetor each time he starts off. Such a habit is not only costly in money but costly in public relations. As administrators we can not afford either.
2. High speed. Sustained high speeds may take as much as 25 per cent more gas per mile. There are few situations that justify high speed driving. Only when in actual pursuit of a violator is an officer justified in exceeding the legal speed limit or when the emergency is a matter of life or death. Many will disagree with this statement, but remember excessive speed endangers both the driver and

other motorists on the road. The small amount of time saved is not worth the risk. Safety is paramount with economy as a by-product.

3. Change of pace. The driver who habitually speeds up and then slows down has developed a habit that increases his cost of operation considerably. The constant pumping of the accelerator wastes fuel and is discomfoting to those riding with him. The numerous stops, starts, and change of speed as in city driving may add as much as 60 per cent to the cost of operation. Planned and careful driving can reduce gas consumption to a minimum.
4. Motor warm-up. No longer is it necessary to warm up a cold motor by slow idling. In fact it is more harmful to do this than to start and continue to drive at a moderate speed until the motor reaches normal operating temperature. When the engine idles slowly, moisture rapidly forms in the crankcase which builds up acid and sludge quickly. Years ago automotive engineers had difficult lubrication problems with cars due to heavy oils that congealed in cold weather. Modern oils have solved the problem and will remain fluid at a temperature far below zero, and vehicles of today have a much more efficient oiling system.
5. Shut off the moter when stopped. Heavy duty battery, low speed and high input generator now furnished or at least available on all police vehicles have tremendously increased the capacity and efficiency of the electrical circuit. This increase coupled with a low drain receiver and transmitter makes it unnecessary for the engine to be operated at idle speed while the vehicle is stopped. Good common sense operation will result in saving in gasoline, and longer engine life by prevention of acid formation as previously explained.
6. Purchase of gasoline. Every price advantage should be taken in buying fuel. One of the best ways to accomplish this is by competitive bids. The State of California purchases gasoline by bid on a yearly contract for every state vehicle. This results in a considerable saving to the taxpayers. Such a plan can work in a community no matter how small or what the size of the fleet. If your fleet qualifies, take advantage of all

possible tax deductions levied on motor fuel. Train your personnel to operate on the gas in the upper half of the tank. An emergency may require many miles of driving with no time to spare for a service stop. When getting gasoline, caution the station operator not to fill it so full it will spill out or run over. Two good reasons for this are that when the tank runs over as much as a pint of gasoline is wasted. This not only results in lost mileage but it mars the finish and appearance of the vehicle. If the gas tank is completely filled, loss of gas through leakage is likely to take place. Gasoline is generally pumped from an underground storage tank where the temperature is relatively cool or cold. In the car's fuel tank the temperature rises, which causes the liquid to expand and escape. This is especially true in hot weather.

7. Lubrication. Modern day oils and greases do not wear out, but it is necessary to periodically replace them. Acids form in the oils, and so far no simple and economical method has been devised to eliminate or filter them. Grit is picked up by grease on the vehicle and works its way between the bearing surfaces, therefore, it must be replaced. Follow the recommendation of a reliable lubrication engineer of the oil company or of the automotive manufacturer.
8. Tires. Check the manufacturer's recommendation for inflation pressures, then exceed them by two or three pounds. By the way, tires should be checked and inflated when they are cold, not warm or hot; therefore, the proper time to check them is before starting the day or after getting the car greased, oil changed, or washed. During such periods of idleness the tires will have cooled somewhat. If you persist in checking the tires when hot—first properly inflate them when cold and then check the pressure after they become hot. Thereafter when checking a heated tire overinflate it the amount you determined by experimentation. This is not the best procedure, but it is better than reducing the pressure in a hot tire to the normal cold pressure recommendation. Underinflation can cut tire mileage as much as 20 per cent and use more gas because of the greater surface friction. Engineers who try to establish mileage records

considerably overinflate the tire and grind off the tread to reduce friction, and with other alterations are able to achieve fantastic figures. Recently one oil company engineer in a six-cylinder car obtained 97 miles to the gallon. Improper alignment reduces tire life by as much as 50 per cent. Fast driving eats into tire wear at a 50 per cent faster rate, and fast turns cause ten times the wear of a normal speed turn. Fast stops and starts shorten tire life, so use the brake sparingly, and operate at a slow, even speed at all times.

9. Maintenance. A definite and carefully planned maintenance program is required for safety and economy of operation. For greatest economy a motor must be properly tuned and maintained. Briefly, the maintenance schedule as established for our department, the Missouri State Highway Patrol, is as follows: Daily inspection—check tire inflation before starting the tour of duty. Inspect the cooling system each time the car is serviced. Modern antifreeze solutions are colored as an aid to detection of leaks. Water level should be above the battery plates as dry plates shorten the life. Develop the habit when driving to observe the instruments on the dash panel. If the temperature gauge indicates overheating it may be caused by insufficient amount of coolant, broken hose, leak in the system, loose and slipping fan belt (the condition and tension of the fan belt should be checked weekly), clogged system, bad water pump, improper timing, or low level of oil. A low pressure on the oil gauge may be the result of pump failure or break in the oil line, while a high pressure normally indicates a low level of oil. A discharge on the ammeter warns of impending trouble from a short, generator failure, or a defective cutout regulator. By frequent observation the good driver often recognizes trouble before it actually happens and can avoid it.

Procedure at each 3,000-mile inspection—change oil; grease; remove, check, and clean air filter; inspect tires for uneven wear, cuts or breaks, and remove any gravel from the tread.

Procedure at each 6,000-mile inspection—tuneup; check spark plugs; distributor

points; timing; brakes; generator brushes; adjust the transmission; change the oil filter.

Procedure at each 12,000-mile inspection—check the carburetor and repack the front wheels. As we trade our cars at 25,000 miles we do not plan any maintenance program beyond that.

Your factory fleet representative or factory engineer will cooperate and work with you in establishing a satisfactory program. Follow his recommendations as he best knows the most economical procedure. If mechanical work is performed in commercial garages the officer should be instructed to apply for the regular parts discount given all fleet operators. The mechanic employed by a dealer who handles the make of car you use will probably do a better job of maintenance as he is especially trained in servicing the particular make, and sometimes mechanically defective parts are replaced under a warranty policy which does not apply if any other commercial mechanic performs the service.

10. Accident prevention. Accidents are costly both in money and adverse public opinion. Train your drivers to practice defensive driving. It may save a driver's life as well as his motor equipment. Anticipating the other motorist's actions and pre-planning the defense is cheap insurance. The officer should set an example by his driving and never do anything that would bring criticism on him or his department.

Supervision is a part of any successful program and must be provided in this one. Its purpose is not to force compliance but to counsel, encourage and evaluate progress and results. Supervision is a tool of management at each and every level of command. It must start at the top and carry down to the individual driver. The most effective supervision occurs at the lowest level, but evaluation, progress and supervisory aids must be relayed down to the level of execution where results are produced. An administrator must organize his department to effectively carry out his program. He knows best how to obtain results.

MANAGEMENT'S RESPONSIBILITY

The administrator's responsibility to train, provide incentive for his personnel, and organize for supervision and evaluation of the program has

been discussed. He has four more areas of responsibility—selection, purchase, assignment, and replacement. He may partially or wholly delegate these to his officer in charge of the fleet, but must keep himself well informed at all times.

Selection. Selection should not be a difficult problem unless for some reason you desire to purchase a certain make automobile or eliminate some bidders. Our manufacturers produce many dependable vehicles that are satisfactory for police work even to the small ones for some kinds of duty. There are available as options from the manufacturer many types of equipment that increase the power, speed, acceleration, roadability, et cetera, of the vehicle, therefore, it is possible to fit the car to the job. The wise administrator will study and analyze the functions of the divisions of his department and group those whose duties and fleet requirements are similar. It is false economy to furnish personnel assigned to driver examination an expensive and powerful vehicle when the need is primarily for transportation. On the other hand an officer assigned to duty in a rural area would need a vehicle with acceleration. He needs to apprehend the offender before he gets an opportunity to attain a high speed. This is not always possible, but a quick apprehension prevents risk to the officer and other motorists.

Body style makes very little difference as to the suitability for police work. Formerly we thought only 2-door cars could be used, but after trying 4-door sedans our men liked them better. If the fleet can be mixed between 2-door and 4-door cars it will be easier to dispose of them which usually results at a slightly better price. These variations are especially helpful with large fleets. Power steering, padded dash, and seat belts are purchased as options on all Missouri State Highway Patrol cars for the safety of the officer. Automatic transmission, backup lights, windshield washers, et cetera, are specified, as most of the initial cost is recovered at the time of sale because the public now demands such accessories.

Purchases. Specifications may be written around a particular make and model of car desired with the consequent elimination of bids of any other comparable vehicle. Such practices may, under some circumstances be justified, but nearly always lead to extravagance and high costs. Certainly, the most favorable price will result from competitive bids. For this reason it is best to keep the specifications as simple and clear as possible so

that dealers will not be discouraged from submitting a bid. Obviously, fairness and integrity must govern the procedure in accepting and awarding the bid. Good relations with honest and trustworthy dealers is the best policy and the most economical. Contrary to what some think many dealers are dependable and fair.

Most departments dispose of the used cars at a sealed bid sale and buy new cars outright. They maintain this method is cheaper, but it has disadvantages.

1. The agency must recondition the vehicle for resale—a clean vehicle will bring a much better price than a poorly maintained one, and this cost must be deducted from the selling price of the vehicle.
2. The used car market is unpredictable and unless one is constantly in touch with it he can not know the best time to sell.
3. The department is in the used car business usually without the knowledge, experience, and profit incentive of the car dealer.
4. The inability to forecast the car market, either new or used, makes it difficult to plan for the future and determine budgetary needs.

Our department prefers to let the dealer handle the used cars. He has all these worries and our efforts can be channeled to other means of efficient and economical operation.

Assignment. The administrator is confronted with the problem of how many vehicles are needed for the effective and economical operation of his department. In state enforcement agencies the ratio varies from one vehicle for each officer to one vehicle for each three officers; however, the majority have a one-to-one ratio or closely approach those figures. There are certain factors that management may consider to justify assigning a vehicle to every officer.

1. Better vehicle maintenance results when the officer is held solely responsible for the condition of his vehicle. He realizes it is his most valuable tool with which to work, and it is his office for the day. Consequently, he takes better care of it.
2. Pride of individual possession means a great deal to him and tends to bolster his morale, and every administrator knows that good morale promotes greater efficiency.
3. Availability is an important factor when the officer is subject to call 24 hours a day as are most police officers.

4. When more than one officer uses a vehicle there is usually a time loss period during the shift change. Individual assignment eliminates any such loss which may be quite costly if the shift change comes at a peak traffic period. Proper scheduling, to some degree, may eliminate shift changes at such peak periods, but it might be more economical and efficient to schedule the shifts so there would be an overlapping during heavy traffic conditions. Only when each officer has a vehicle available can any appreciable value be obtained from overlapping the shifts.

5. Some deterrent effect is realized by the mere presence of a police vehicle on the streets or highways. At least one department attaches so much value to this that they assign a vehicle to each member and within reason permit him to operate the vehicle for personal use, with the stipulation he will handle any police matters that occur in his presence.

The disadvantage of the individual assignment policy is that the cost is very likely to be higher than if the vehicle is shared by two or more officers; however, several ideas for greater economy have already been mentioned and very well could offset the anticipated higher cost which is not nearly as great as we might think. Basically, your department operates X miles a year with Y number of vehicles, which gives an average Z number of miles for each car. If the total miles traveled by the department remains constant and the number of vehicles is increased the average number of miles traveled by each vehicle becomes less. (Again we must remind ourselves that we are buying mileage and not automobiles. Additional vehicles are merely items of inventory.) The question confronting the administrator is how much does it cost to increase the number of cars. A governmental agency receives from one to two per cent on its surplus money, so if we purchase a \$2400 vehicle and multiply the cost by 0.02 we determine the yearly amount of interest to be \$48, which is the actual cost of each additional unit added to the fleet. Normally, surplus money is available in small amounts only, therefore, additions to the fleet must be acquired gradually when funds permit. Now, if the officer is permitted to use his patrol car for transportation to and from work this is an added cost to the department, the amount of which is determined by the distance the officer must drive each way. The cost per mile for an efficient fleet should not exceed six cents. The total

cost of additional fleet units would be the cost of inventory (\$48) plus the cost of to-and-from-home transportation. Other factors, pro and con, may be brought out by the alert administrator as with him rests the final decision of how many and to whom the vehicles in his fleet will be assigned.

Replacement. The ideal time to trade vehicles or replace them is just before maintenance costs go up and depreciation has been minimized. Actually, there must be a balance between the two as maintenance cost increases with age while the rate of depreciation decreases. A study made by one automotive manufacturer as to cost of maintenance based on the national average for a small car shows that in the first 15,000 miles the cost is \$60; in the next 15,000 miles it increases to \$112. The maintenance bill jumps to \$180 for the miles over 30,000 and reaches a peak of \$325 at 60,000 miles of operation. Depreciation cost on the average small car amounts to 27 per cent the first year the study revealed: 16 per cent the second year: 12 per cent the third: and 10 per cent the fourth.

If the administrator could only know when this balance between maintenance cost and depreciation is reached his problem would be solved. Unfortunately, there is no formula by which the most economical time to trade can be determined. Depreciation cost can be determined fairly accurately, although it is somewhat affected by fluctuation of the used car market and by supply and demand. Should a fleet operator place on the used car market at one time a number of vehicles of the same make, body style and color, the market will immediately drop. Some dealers and administrators have learned this lesson of supply and demand the hard way. Maintenance cost cannot be calculated so accurately as depreciation cost. Vehicles have a nasty habit of suddenly needing extensive repairs which push holes in an economy program. Of course, accurate accounting records help determine the mileage at which a vehicle will require above normal maintenance, but the accounting system is always behind the actual mileage and generally the time to trade is discovered too late.

A study of the replacement policy of many of the State agencies revealed that the mileage at which vehicles were disposed of varied from 60,000

to 150,000. Many branches of our Federal Government replace vehicles at 60,000 miles. The Missouri State Highway Patrol is the only fleet operator, to this author's knowledge, that replaces its enforcement vehicles at 25,000 miles. It seems silly to trade a car with so few miles of service, but our study over a three-year period revealed that the cost of operation and maintenance for the mileage over 25,000 increased an average of 4 mills a mile. If you operate your vehicles to 60,000 miles or more before disposing of them, at least $\frac{35,000}{60,000}$ or $\frac{1}{2}$ of your total mileage operated is in

the 4-mill increase range as determined by our study. You can roughly calculate what saving you may make by trading your vehicles at 25,000 miles, although this will not be a net saving. To follow such a policy requires doubling the rate of replacement, with a consequent doubling of the make-ready costs (the cost of changing police equipment). This cost varies from one department to another, (our cost is about \$50), but our experience has been that the saving in maintenance more than pays the additional make-ready cost.

Two important factors that one might say are by-products of this policy are better departmental morale and better merchandise for resale. The cars are clean, well cared for, none over one year old, and many are replaced during the current model year. Normally, the dealer is able to turn them faster and at a good price which cuts the depreciation to a minimum.

SUMMARY

By study and analysis of the operation of his department the police administrator can effect economies in his fleet that promote greater efficiency and better morale among his personnel. It is the responsibility of management to train, establish incentive programs, and provide guidance and supervision of personnel to insure the success of any plan for economy. Approach the problem of fleet economy with an open mind. Think positively rather than negatively, and do not be hesitant to try those procedures that have merit. If industry can economize, you not only can, but will eventually be forced to establish a similar program. Be wise and lead instead of being forced to follow.