GOVERNMENTAL USE OF AUTOMOBILES IN HAWAII

A Study of
Publicly-Owned and Privately-Reimbursed Automobile Usage
in the
Territory of Hawaii
and the
City and County of Honolulu

by

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FOREWORD

The 1953 Territorial Legislature requested the Legislative Reference Bureau to survey the use made of passenger automobiles by all governmental agencies in the Territory of Hawaii and the City and County of Honolulu and report its findings to the Twenty-eighth Legislature (House Concurrent Resolution No. 6).

This report is based upon data obtained from a survey made by the Legislative Reference Bureau through questionnaires circulated and interviews conducted in the period January-March 1954 and trip tickets kept by governmental employees in May, 1954. The plan of this survey was originally developed as a class project by public administration students at the University of Hawaii. Data was gathered on 684 government vehicles and 1,173 private vehicles for which reimbursement was made by these jurisdictions. The trip tickets to determine the pattern of daily use were distributed to Territorial vehicles on Oahu and all City and County vehicles, excepting cars of the Police and Fire Departments. Trip tickets for 881 government and private cars were thus obtained.

The general reader is referred to the Summary of Survey Findings containing a brief analysis of the findings of the survey. Parts I through VII contain the detailed report and statistical analysis of the data collected. An appendix describes the methodology used in the survey. It is believed the detailed report and statistical sections will be of assistance to those governmental administrators whose duties include automobile control; the appendix on methodology has been included to permit determination of the adequacy of techniques employed and evaluation of the findings contained in this report.

SUMMARY OF SURVEY FINDINGS

Automobile transportation necessary for the conduct of governmental business is usually provided: 1) by public ownership of vehicles; 2) through the reimbursement of employees for the use of their private cars, or 3) by renting automobiles from private firms.[1] During 1953, the Territory of Hawaii and the City and County of Honolulu utilized the first two of these methods; neither government rented private cars.

While the Territory has more than double the number of employees[2] and 2½ times the number of automobiles included in the survey as the City and County of Honolulu, the reported total monthly mileage for the City and County is slightly greater. With the Police Department excluded, however, Territorial monthly mileage is much greater than that of the County.

On the basis of reports submitted by each agency using vehicles, 3/5 of the average monthly automobile expenses of the Territory are for public vehicles whereas the City and County allocated over 2/3 of its expenses to reimbursement for the use of private vehicles. As to be expected from this, the City and County, including the Police Department, utilized private reimbursement to satisfy most of its auto transportation requirements while the Territory mainly used publicly-owned vehicles.

Table 1

APPORTIONMENT OF TOTAL MONTHLY COST AND TOTAL MILEAGE BETWEEN PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOMOBILES

Type	Terr. of Hawaii		City and County	
	% of cost	% of miles	% of cost	% of miles
Publicly-Owned	60%	66%	31%	30%
Privately-Reimbursed	40%	34%	69%	70%
	100%	100%	100%	100%

% Response: See Tables 8 and 9--Chapter 2, pp. 7 and 8--for further data and number of cars included in each entry.

[1]This does not mean the few vehicles that may be rented on a temporary "U-Drive" basis. This classification refers to the contractual arrangement between a government agency and a rental firm for continuous use of a vehicle owned and possibly serviced by the firm.

[2]Territorial employment was 9,381 as of June, 1954, while City and County employment was 4,090. Governmental Employment in Hawaii. Legislative Reference Bureau. Report No. 3, 1954.

Cost Per Mile

The cost of operating a government automobile varies with many factors beside the number of miles used--the level of prices, the age of the car, the type of vehicle, the number and status of those using it, the method of assigning its use, etc. Consequently, the warning must be made that the cost-per-mile figure is an oversimplication--an average figure computed to facilitate comparisons.

With all costs for governmental cars during 1953 averaged on a monthly basis, the mean[3] cost for a Territorial automobile was $.0860 (8.6¢) per mile while the mean cost for City and County vehicles was $.0837.[4] The cost per mile to the government for privately-owned vehicles is more difficult to determine since many employees receive a fixed amount each month and are not required to record monthly mileage. From the figures available of those on mileage payments and a few on flat rates, it appears that Territorial employees receive a mean reimbursement of $.0990 per mile while City and County employees, excluding the Police Department, receive $.0931 per mile.[5] These rates are comparable to, if not slightly higher than, the amount the government spends per mile for government automobiles.

Private Reimbursement

Employees are generally reimbursed for the use of their private automobiles on government business either through payment of a fixed allowance for a specified period, usually monthly, or by a mileage payment computed on the basis of miles driven on government business.

The administrative procedures for determining whether mileage or flat allowances will be paid differ. Both jurisdictions allow the departments greater discretion to authorize their employees to use their own vehicles on government

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[3]As used in this report, mean refers to the most commonly used average--which is computed by adding a series of units and then dividing the total sum by the number of units in the series. The median refers to the mid-point--that point at which half the units in a series are above and half below. The latter has been used throughout the survey in cases where it is desirable to eliminate the effect of extremes that may not be representative or accurate. Cases in which the median and the mean are significantly different have been pointed out; these cases illustrate the effect of extreme scores on expressions of central tendency.

[4]Excluding the Police Department, the City and County mean cost is $.0852 (8.5¢) per mile.

[5]Including the Police Department, the mean cost per mile to the City and County government for privately-reimbursed automobiles is $.0823 per mile. The lowered cost is the result of high mileage vehicles reimbursed on flat allowances; as is pointed out later in the report, generally the higher the mileage the lower the cost per mile.

business when they are to be reimbursed on the basis of the mileage rate adopted by the jurisdiction than when a flat allowance is to be used to reimburse the employee. In both jurisdictions, there may be a pre-audit before payment after the mileage vouchers are approved by the departments. The determination for the payment of a flat allowance is more centrally controlled. In the Territory, all flat allowances must be approved by the Bureau of the Budget before funds are released by the Treasurer, and few are so authorized; in the City and County, application for a flat allowance is made by the department, on behalf of the employee, to the Board of Supervisors. The flat allowance asked by the department is computed by converting the average mileage over a six-month trial period to a set monthly allowance based on 10¢ for the first 200 miles and 8¢ thereafter, rounded to the nearest even amount. During the trial period the employee is reimbursed for the use of his vehicle on government business on the mileage rate of the City and County. The Controller of the City and County reviews all flat allowance requests prior to action by the Board of Supervisors. Any change in rate follows the procedures described above.

Practically all (96%) of the Territory's employees reimbursed for the use of their own automobiles on official business receive mileage payments--10¢ for the first 200 miles each month and 8¢ thereafter. The 33 officers and employees receiving flat allowances in the Territory average $30.00 per month. On the other hand, 58% of the City and County employees other than police are reimbursed by flat allowances which average almost $48.00. The average rate for all City and County employees (including policemen) is higher--$62.00--and 89% of all City and County employees who use their private cars on governmental business receive flat allowances.

Table 2

FLAT ALLOWANCES

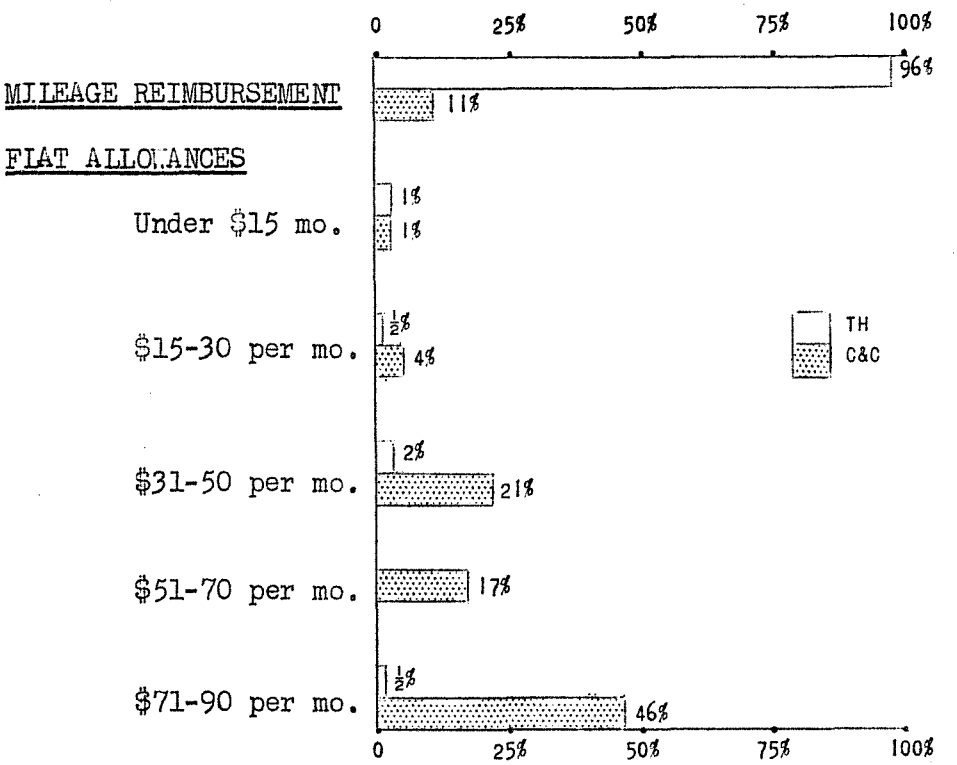
	Territory	City and County	
		Without Police	Including Police
Average monthly flat allowance	$30.00	$48.00	$62.00
% of all employees reimbursed receiving flat allowances	4%	58%	89%

% Response: 100% of all cars included in survey. See Table 19--Chapter 2, p. 31.

The range of rates of flat reimbursement paid by the City and County is much greater than the range of rates paid by the Territory:

Chart 1

TYPES OF REIMBURSEMENT OF EMPLOYEES
FOR THE USE OF PRIVATE AUTOMOBILES



% Response: 100% of all cars included in survey. See Table 19--Chapter 2, p. 31.

Cost Variables for Public Vehicles

1) Mileage. The costs of maintaining a government car in Hawaii are about equal to the rate of private reimbursement at approximately 500-750 miles per month and it appears that it is more economical to provide a government vehicle if cars are continuously driven over this amount.[6] In both jurisdictions there is significant difference in the mean cost per mile for public vehicles depending upon the number of miles that the automobile is used each month. The lowest mean cost per mile is found when cars are driven over 1,500 miles per month and conversely, the highest cost per mile was reported for cars operated less than 250 miles in a month.

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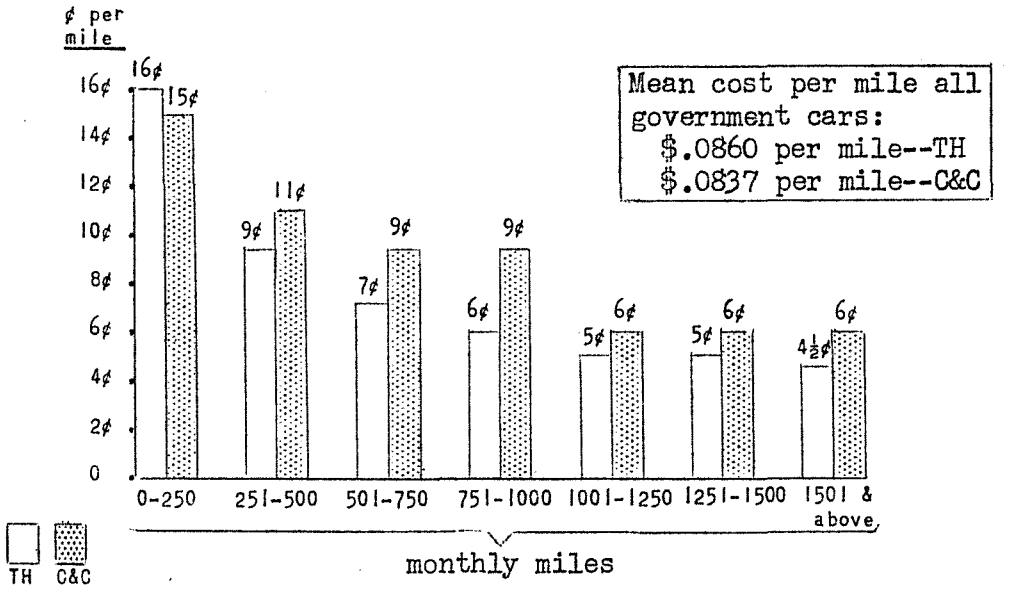
[6]The Federal Government has found that it is more economical to provide a government car if monthly mileage exceeds 1,000. Hearings Before the Committee on Expenditures in the Executive Department. House of Representatives, 81st Congress, First Session. March 18, 21, and 22, 1949. (Washington: Government Printing Office, 1949), p. 75.

Chart 2

RELATIONSHIP OF COST PER MILE AND MILEAGE FOR PUBLIC CARS



% Response: 93% of all government cars surveyed. See Table 18--Chapter 2, p. 26.

2) Age. Territorial vehicles tend to be older than City and County cars. Offsetting this, the City and County has a higher percentage of superannuated cars (over 10 years) than does the Territory of Hawaii. Public vehicles of both jurisdictions also tend to be older than private cars used by their employees on governmental business.

Table 3

AGE OF GOVERNMENT AUTOMOBILES

Year of Make	Territory of Hawaii	City and County
1950-1954	31%	52%
1946-1949	51%	24%
1945 & below	18%	24%
	100%	100%

Age appears to directly affect the cost of public car maintenance. The repair costs for cars over 5 years of age were significantly greater than for cars in the 1950-1954 model years. Also older cars are being driven less miles per month than newer vehicles which causes the fixed costs per mile to increase disproportionately. Many agencies reported that older cars were not able to be driven as much as newer vehicles and thus were assigned to low mileage uses.

3) Make and Model. The great majority of government automobiles in both jurisdictions are light weight, lower-priced sedans. Both the Territory and City and County are operating more Chevrolets than any other single make of car.

Table 4

SIX MOST USED MAKES OF GOVERNMENT AUTOMOBILES

	All Government Cars (684 cars)	Territory of Hawaii (496 cars)	City and County (188 cars)
1. Chevrolet	29%	31%	26%
2. Ford	18	20	14
3. Plymouth	15	15	13
4. Dodge	12	10	19
5. Willys	11	12	10
6. DeSoto	5	4	6
	90%	92%	88%

Assignment

Government vehicles may be assigned to an individual employee or operated from pools for the use of two or more employees. A higher percentage of the Territory's vehicles on Oahu are pooled than City and County automobiles. It appears that the cost per mile of individually assigned and pooled cars is very similar in the City and County but Territorial pooled cars are more expensive. This is because pooled Territorial cars are driven less than those governmental cars assigned to individuals. On the other hand, pooled City and County cars reported considerably more mileage than did cars assigned to individual employees. In view of the findings of the survey, the whole subject of pooled cars would appear to need considerable study.

Individually assigned government automobiles tend to be used by officers and employees in the higher civil service classifications, pooled cars by those in the lower classifications. Also the higher the classification the more likely it is that the employee will have a medium rather than a light weight government car assigned to him. It does not appear that those in higher classifications drive more than others.

It was found that with regard to private cars reimbursed by the government, flat rate reimbursements for the use of private cars are more common in the case of employees in the higher civil service clasifications and officers.

Table 5

ASSIGNMENT OF GOVERNMENT AUTOMOBILES

	Individually Assigned		Pooled		Not Indicated		Total	
Territory of Hawaii cars on Oahu	# cars	%	# cars	%	# cars	%	# cars	%
	133	45%	141	48%	20	7%	294	100%
City and County cars	108	57%	73	39%	7	4%	188	100%

Parking Practices

Only 21% (of which 5% are employees who work from home) of the Territory's automobiles on Oahu are taken home at night from governmental grounds. Going to and from home accounted for 8% of the total mileage of all cars in May, 1954. Fifty-seven per cent of the City and County cars are taken home at night and almost 16% of all mileage reported for City and County government cars during May, 1954 was used by employees travelling to and from work.

Cars taken home at night usually are those assigned to individual employees, (rather than pooled cars), and the employees tend to be in higher classifications. There appears to be no definite pattern of work assignment that determines whether or not cars are to be allowed to be taken home at night.

Of those Territory of Hawaii cars taken home at night, the questionnaires indicated that 62% were housed in a garage or shed and 7% were left in the open; 31% did not indicate the type of accommodations. Forty-seven per cent of City and County vehicles taken home at night were put in garages or sheds, 11% in the open, and 42% failed to respond.

For those vehicles left on governmental premises after working hours, 42% of the Territorial cars are left in the open and 55% are kept in garages or sheds.[7] Only 16% of City and County cars left at work are kept in the open; 57% enjoy garage or shed accommodations.[8] This is probably a result of the extensive practice of sending City and County cars home at night if public night parking facilities are not available.

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[7]In addition, 1% have combination open and shed and 2% did not indicate type of parking area.

[8]In addition, 24% have combination open and shed and 3% did not report type of parking area.

During the day, the majority of both public and private automobiles are left in the open.

Patterns of Daily, Weekly, and Monthly Use

Definite patterns in the use of automobiles were determined from the trip tickets on which were recorded all usage of vehicles during May, 1954. At no hour during the month were more than 75% of the government vehicles surveyed in use. On the average the highest number of privately-reimbursed employees out in any one hour did not exceed 60% of all employees reimbursed for the use of their automobiles in either jurisdiction.

The range in the proportion of government cars out to government cars owned at any one hour varied from 17%-65% of all Territorial cars surveyed and 27%-74% of all the County cars surveyed. As to be expected, the range in number of privately-reimbursed vehicles out at one hour varied even more greatly.

Both public and privately-reimbursed automobiles are used more in the morning than in the afternoon. There appears to be a general pattern of light early morning use rising to a peak at 10-11 a.m. and then falling to a low during 12-1 p.m. Intensity of usage rises sharply after lunch until mid-afternoon after which the average number of cars out declines rapidly.

In terms of use outside regular office hours, more government work requiring automobiles is reportedly done from 5 p.m. to midnight than from midnight to 7 a.m.

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GOVERNMENTAL USE OF AUTOMOBILES IN HAWAII

I.

Introduction: The Scope of the Survey

During the year 1953, the Territory of Hawaii owned and operated the largest civilian fleet of automobiles[1] in Hawaii. The 496 automobiles surveyed accounted for a yearly Territorial expense of slightly over $250,000, based on reports of average monthly cost.[2] This is a growth of 143% over the 204 passenger automobiles owned by the Territory in 1940.[3]

The City and County's fleet of governmental passenger cars is markedly smaller, although constituting the second largest in the Islands.[4] One hundred and eighty-eight automobiles for which questionnaires were returned reported almost $150,000 for upkeep and operation during 1953.[5]

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[1]The survey covers all four-wheeled vehicles primarily designed for carrying passengers. Included are jeeps and station wagons. Excluded were busses, trucks, pick-up trucks, and other similar vehicles.

[2]See Table 9, page 8: MONTHLY COST OF PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOMOBILES. As used here, "expense" includes not only out-of-pocket operating costs, but depreciation, etc.

[3]Bureau of the Budget, Territory of Hawaii, Report on the Present Policy and Procedures Governing Automobile Transportation in the Transaction of the Business of the Territory of Hawaii, Part I, May 17, 1941, p. 13.

[4]All other counties combined owned 113 passenger vehicles as of the end of 1953. From Automobile Registrations for the Territory of Hawaii, compiled by the Honolulu Automobile Club, February 5, 1954. Telephone inquiry revealed that the largest private owner of passenger cars had 119 registered vehicles on October 15, 1954.

[5]Op. cit., see Table 9, p. 8.

THIS REPORT COVERS DATA FROM THE QUESTIONNAIRES SUBMITTED BY ALL GOVERNMENTAL AGENCIES ON THE ABOVE MENTIONED 684 GOVERNMENT AUTOMOBILES[6] AS WELL AS THE 1,173 PRIVATELY-OWNED AUTOMOBILES REIMBURSED FOR USE ON GOVERNMENT BUSINESS IN THE TWO JURISDICTIONS. Since the information requested by the questionnaires was not available for each car surveyed, the number of cars included and percentage reponse to each question has been indicated throughout the survey.

In terms of total cost and mileage driven, the Territory of Hawaii and the City and County of Honolulu are relatively similar. For both publicly-owned and privately-reimbursed automobile transportation, the Territory of Hawaii spends $35,000 per month for over 460,000 monthly miles and the City and County $40,500 per month for almost 570,000 miles.[7] However, these figures include the Police Department without which the total costs and monthly mileage of the City and County are much lower than the Territory's. For purposes of comparison, many of the calculations show the Police Department separately.

The balance of Parts I - VII report on the composition of governmental car fleets, their administration, and the component costs of operating governmental cars compared with reimbursing private owners for the use of their vehicles on governmental business. The patterns of daily use have been determined by a trip ticket kept during the month of May, 1954, by Territorial vehicles on Oahu and all City and County vehicles included in the survey except for Police and Fire Departments.

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[6]Total government automobile registrations as of December 31, 1953, showed 701 passenger vehicles registered to the Territory (523) and the City and County (178). Automobile Registrations, op. cit. This survey includes 10 more City and County vehicles and 27 less Territorial vehicles. These differences may be due to classification of "passenger vehicles," exclusion from the survey of vehicles purchased late in the month of December as being unrepresentative, vehicles disposed of during the year; etc.

[7]See Table 8, p. 7: MONTHLY MILEAGE OF PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOMOBILES, and Table 9, op. cit., p. 8.

II.

The Proportion of Publicly-Owned and Privately-Reimbursed Automobiles

In order to determine use made of publicly-owned and privately-reimbursed vehicles on government business, it is necessary to analyze more than merely the number of each type of vehicle. To determine the proportion of use given to public or private vehicles it is necessary to look at the number of miles driven by publicly-owned vehicles in contrast to the number of miles for which employees are reimbursed. Also significant are the relative costs for both public and private transportation.

A. NUMBER OF PUBLIC AND PRIVATE AUTOMOBILES

The various agencies of the Territory of Hawaii reported they owned 496 automobiles and reimbursed 794 employees for the use of their vehicles during 1953. The City and County of Honolulu reported owning 188 automobiles and reimbursing 379 employees during the same year.

The following table indicates for each jurisdiction, by agency, the number of its public automobiles and the number of private vehicles it reimburses:[8]

[8]Agencies are listed alphabetically by name of Department or Division used on questionnaire returned to Legislative Reference Bureau.

Table 6

NUMBER OF PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOMOBILES IN EACH AGENCY IN TERRITORY OF HAWAII AND CITY AND COUNTY OF HONOLULU

Agency	Number Public Cars	Number Privately Reimbursed
TERRITORY OF HAWAII		
1. Agriculture and Forestry, Board of	70	12
2. Attorney	--	2
3. Auditor	1	1
4. Boxing Commission	--	1
5. Budget Bureau	1	--
6. Civil Defense Agency	--	2
7. Civil Service	--	3
8. Court, Juvenile	--	34
9. Courts, Circuit	4	18
10. Fair Commission	--	1
11. Governor's Office	1	1
12. Harbor Commission	8	1
13. Hawaii Aeronautics Commission	14	2
14. Hawaii Housing Authority	20	--
15. Hawaii Irrigation Authority	3	2
16. Hawaiian Homes Commission	6	--
17. Health Department	172	74
18. Institutions, Department of	49	12
19. Labor and Industrial Relations	1	48
20. Library of Hawaii	1	6
21. Military Department	6	--
22. Public Instruction	9	372
23. Public Lands	4	--
24. Public Utilities Commission	--	1
25. Public Welfare	35	60
26. Public Works	43	4
27. Real Estate Commission	--	1
28. Secretary of Hawaii	1	1
29. Sight Conservation	8	21
30. Surveyor	3	--
31. Tax	24	30
32. Treasurer (Fire Marshal)	1	1
33. University of Hawaii	11	80
34. Veterans Affairs	--	3
	496	794

Agency	Number Public Cars	Number Privately-Reimbursed
CITY AND COUNTY OF HONOLULU		
1. Attorney	1	--
2. Auditor	1	--
3. Automotive Equipment*	3**	--
4. Building Department	8	14
5. Chief Engineer	1	2
6. City Planning Commission	1	--
7. Civil Service	--	2
8. Clerk	1	--
9. District Court	--	2
10. Fire Department	8	--
11. Health Department	1	9
12. Mayor	1	--
13. Motor Vehicle Dealers	--	1
14. Oahu Civil Defense	1	--
15. Plans, Bureau of*	27	13
16. Police Department	21	278
17. Public Instruction	--	2
18. Public Parks and Recreation	20	14
19. Public Prosecutor	1	1
20. Refuse Collection*	5	9
21. Rent Control	--	14
22. Road Maintenance*	10	--
23. Royal Hawaiian Band	--	1
24. Sewers*	10	9
25. Sheriff	1	6
26. Street Lighting*	3	--
27. Suburban Water*	15	--
28. Traffic Safety Commission	--	1
29. Traffic Safety, Division*	3	1
30. Treasurer	1	--
31. Water Supply, Board of	44	--
	188	379

*Public Works.

**Automotive Equipment Division owns more than these automobiles but "rents" cars to other departments. Rental cars have been included in Agency to which rented.

In the Territory of Hawaii, the Health Department, the Board of Agriculture and Forestry, the Department of Institutions, and the Department of Public Works own the largest number of government cars. There is no central servicing garage for government cars in the Territory of Hawaii. The Department of Public Works, the Health Department, and the Board of Agriculture and Forestry have garages which some other departments may use. Most agencies obtain gas from government pumps but repairs are made through private garages. Although the Department of Public Instruction (one of the largest departments) reimburses almost 1/2 of all territorial employees given reimbursement, its employees usually receive very small individual monthly payments.

The general picture in the City and County of Honolulu is markedly different. Whereas government automobiles are distributed generally throughout City and County agencies, the use of private automobiles is concentrated in the Police Department. Because the Police Department reports a very high car-miles-per-month ratio, including its cars with the other City and County cars shifts averages unduly. Consequently, in several instances the Police Department statistics have been separated from other City and County data. The Automotive Equipment Division of the Department of Public Works operates as a rental company for other City and County agencies. Seventy out of the City and County's 188 cars are "rented" from the Automotive Equipment Division at 11¢ per mile or a minimum of $70 per month.[9] For comparative purposes, cars rented and serviced by this division have been calculated separately in various cost figures. The Board of Water Supply, the Automotive Equipment Division, the Police Department, and the Board of Parks and Recreation maintain garages.

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[9]Cars rented from the Automotive Equipment Division are listed in Table 6 under the agency to which they are rented.

B. MILEAGE OF PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOS) Even though the Territory of Hawaii reimburses almost twice as many employees for the use of their private cars as public automobiles it owns, 2/3 of the total monthly mileage of the Territory is driven by its public vehicles. This is the result of the small monthly mileage for which each employee is reimbursed--a mean of only 205 miles per month--while government automobiles average 642 miles each month.

Both publicly-owned and privately-reimbursed automobiles average more miles in the City and County than their counterparts in the Territory. Excluding the Police Department, the City and County utilizes publicly-owned vehicles for almost 3/4 of all mileage driven; including the Police Department, and in contrast to the Territory, 70% of the total monthly mileage is driven by private automobiles.

Table 7

AVERAGE MONTHLY MILEAGE

	Public Automobiles	Reimbursed Vehicles
Territory of Hawaii	642 miles	205 miles
City and County of Honolulu without Police Dept.	781 "	422 "
City and County of Honolulu with Police Dept.	961 "	1121 "

% Response:	Government	Private
Territory of Hawaii	96%	96%
City and County of Honolulu	96%	89%

(Mileage and reimbursement figures are based on the monthly average for 1953 as contained in the questionnaires returned. Trip tickets sent out in May 1954 tended to confirm these figures.)[10]

Table 8

MONTHLY MILEAGE OF PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOMOBILES

	Territory of Hawaii		City and County of Honolulu			
		% of Mileage	Without Police Dept.	% of Mileage	With Police Dept.	% of Mileage
Government Automobiles	305,414	66%	124,235	74%	172,928	30%
Reimbursed Automobiles	156.887	34%	42.622[a]	26%	394.682	70%
Total monthly mileage for government	462,301		166,857		567,610	

[a]Estimated from average, times total number of employees reimbursed. Only 58 out of 101 turned in mileage.

% Response:

TH Government cars	96%
C&C Government cars without Police Dept.	95%
C&C Government cars with Police Dept.	96%
TH Private cars	96%
C&C Private cars without Police Dept.	57%
C&C Private cars with Police Dept.	89%

In summary, both the Territory of Hawaii and the City and County of Honolulu (excluding the Police Department) utilize public automobiles for the great bulk of monthly mileage reported, this despite the fact that reimbursement is paid for more private cars than the number of cars governmentally owned. However, the City and County pattern with the Police Department included is predominately a pattern of private reimbursement rather than public vehicle use.

[10]See Methodological Appendix p.65.

C. COST OF PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOS) The Territory of Hawaii and the City and County of Honolulu spend approximately $35,000 and $40,500, respectively, per month for all automobile transportation. The percentage of this total monthly cost spent for publicly-owned as contrasted with privately-reimbursed transportation differs markedly in the two jurisdictions.

Table 9

MONTHLY COST OF PUBLICLY-OWNED AND PRIVATELY-REIMBURSED AUTOMOBILES

	Territory of Hawaii		City and County of Honolulu			
		% of Cost	Without Police Dept.	% of Cost	With Police Dept.	% of Cost
Government Automobiles[a]	$20,950.91	60%	$ 9,215.63	69%	$12,418.49	31%
Reimbursed Automobiles[b]	14,144.59	40%	4,198.41	31%	28,156.73	69%
Total monthly cost to government for automobile trans.	$35,095.50		$13,414.04		$40,575.22	

[a]Includes all costs except insurance and licenses. See Table 16, p. 24, for list of costs included.
[b]Includes all reimbursement and perquisites. See Table 22, p. 35, for breakdown of private costs.

% Response:

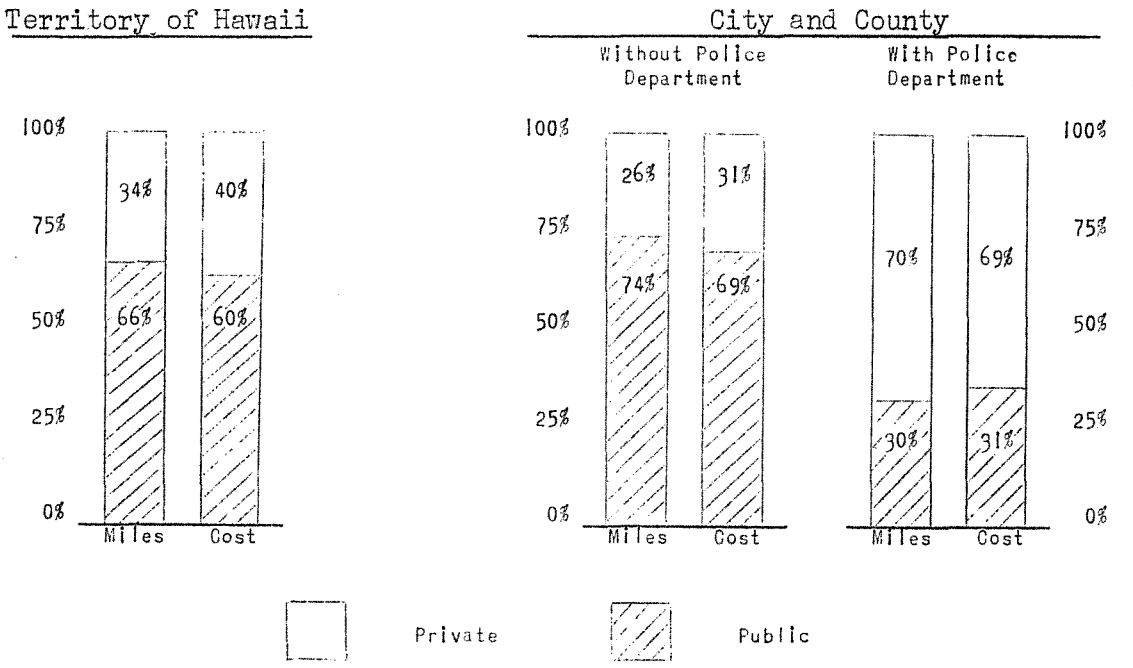
TH Government cars	97%
C&C Government cars without Police Dept.	64%
C&C Government cars with Police Dept.	95%
TH Private cars	100%
C&C Private cars without Police Dept.	99%
C&C Private cars with Police Dept.	99%

D. COST AND MILEAGE COMPARED

Comparing cost and mileage percentages indicates that without the Police Department, the Territorial and the City and County dependence on publicly-owned cars is quite similar. This is graphically illustrated in Chart 3, following, in which percentages of cost and miles are compared. (In this sort of comparison, the fact that the Territory owns more cars than the City and County becomes irrelevant.) With the Police Department included, however, it is obvious that the Territory relies more heavily upon publicly-owned vehicles to meet its transportation needs than does the City and County.

Chart 3

COMPARISON OF MILEAGE AND COST OF PUBLIC AND PRIVATELY-REIMBURSED AUTOMOBILES



Source: See Tables 8 and 9, pp. 7 and 8.

III.

Description of Publicly-Owned and Privately-Reimbursed Automobiles

A. MAKES OF CARS) Six makes of automobiles account for 90% of all government passenger vehicles. Over 75% of all cars used by the government are light weight cars[11] and although the Territory of Hawaii and the City and County vary slightly, the pattern is similar. There are very few heavy vehicles owned by these two jurisdictions; mainly the City and County Fire Department maintains heavy cars. Employees reimbursed by the government tend to use heavier cars than the government. Table 10, following lists makes of cars both owned by government and privately-reimbursed vehicles included in the survey:

[11]Light weight vehicles include Chevrolet, Ford, Henry J, Hudson, Nash, Plymouth, and Willys.

Table 10

MAKES OF CARS

	GOVERNMENT			PRIVATE		
	All	Territory of Hawaii	City and County	All	Territory of Hawaii	City and County
Bantam Cars*	8	8	-	20	18	2
Buick	8	2	6	51	33	18
Cadillac	-	-	-	3	1	2
Chevrolet	200	152	48	286	174	112
Chrysler	12	4	8	21	18	3
DeSoto	31	19	12	121	55	66
Dodge	82	47	35	73	65	8
Ford	124	97	27	197	130	67
Fraiser	-	-	-	1	1	-
GMC (Suburbans)	2	2	-	-	-	-
Henry J	3	2	1	3	-	3
Hudson	11	7	4	7	4	3
Jeeps (Military)	2	2	-	1	1	-
Kaiser	-	-	-	7	7	-
Lincoln	-	-	-	4	2	2
Mercury	2	2	-	36	22	14
Nash	1	1	-	20	16	4
Oldsmobile	2	2	-	45	32	13
Packard	2	1	1	11	9	2
Plymouth	101	76	25	172	127	45
Pontiac	5	5	-	26	22	4
Studebaker	10	7	3	37	30	7
Willys	78	60	18	15	15	-
Total	684	496	188	1157	782	375
Not indicated	-	-	-	16	12	4
				1173	794	379
% Response:	100%	100%	100%	99%	98%	99%

*"Bantam" cars include Austin, MG, Hillman-Minx, English Ford, Morris, etc.

B. MODELS OF CARS) The sedan is the model most often used for public automobiles as well as cars owned by employees which are used for government business.

Table 11

AUTOMOBILE MODELS

Model	Government-Owned	Privately-Reimbursed
Sedan	54%	75%
Station Wagon	17%	2%
Coupe	15%	10%
Jeeps	11%	1%
Suburbans	2%	-
Convertibles	-	1%
Not indicated	1%	11%
	100%	100%

Almost 85% of all Territorial automobiles have seating capacity for more than 2 persons other than the driver. Yet, during the entire month of May, 1954, only 37% of the Territorial vehicles reporting[12] indicated that more than 2 passengers were driven at any time on official business. Only 54% of City and County vehicles reported[13] over 2 "maximum passengers"[14] during May, 1954. In the case of the City and County, 90% of the government cars will accommodate the driver

[12]For the trip ticket survey in May, 1954, only Territorial cars on Oahu were included. Of the 294 Territorial automobiles surveyed on this question, only 69% responded.

[13]For the trip ticket survey the Police and Fire Departments were excluded. Of the 159 City and County automobiles surveyed on this question, only 67% responded.

[14]"Maximum passengers" means maximum number of passengers accommodated on any one trip on official business in government cars during the month of May, 1954. For those cars which reported any passengers at all, median maximum passengers during May, 1954, for Territorial automobiles was 2 passengers and 3 passengers in the City and County.

and more than 2 passengers. In other words, most government cars have more seating capacity than is required.

It appears that pooled cars are taking more passengers than those cars assigned to only one individual for use. This suggests that savings could be realized if sedans were retained as pooled vehicles but lower priced coupes were used for individual assignments were extra seating capacity is not required.

C. AGE OF CARS) Government cars are generally older than privately reimbursed automobiles used on government business. The median age of Territorial and City and County automobiles is 6 and 4 years, respectively, while the median age of privately-reimbursed vehicles in the same jurisdictions is 3 1/2 and 2 years. Vehicles used for the City and County are newer than Territorial vehicles, and this is true for both publicly-owned and privately-reimbursed cars. City and County employees' automobiles are probably newer than those of Territorial employees because policemen are encouraged to turn in their automobiles every two years.

Table 12

NUMBER OF CARS BY YEAR OF MAKE
AS OF DECEMBER 31, 1953

Year of Make	Government-Owned				Privately-Reimbursed			
	Territory of Hawaii	%	City and County	%	Territory of Hawaii	%	City and County	%
1953 & 1954	37	7%	31	16%	76	10%	93	25%
1952	34	7%	18	10%	95	12%	91	24%
1951	55	11%	31	16%	167	21%	97	25%
1950	30	6%	18	10%	151	19%	50	13%
1949	53	11%	7	4%	94	12%	17	4%
1948	95	19%	21	11%	57	7%	10	3%
1947	79	16%	16	9%	34	4%	6	2%
1946	25	5%	-	-	17	2%	3	1%
1945 & below	88	18%	46	24%	103	13%	12	3%
	496	100%	188	100%	794	100%	379	100%

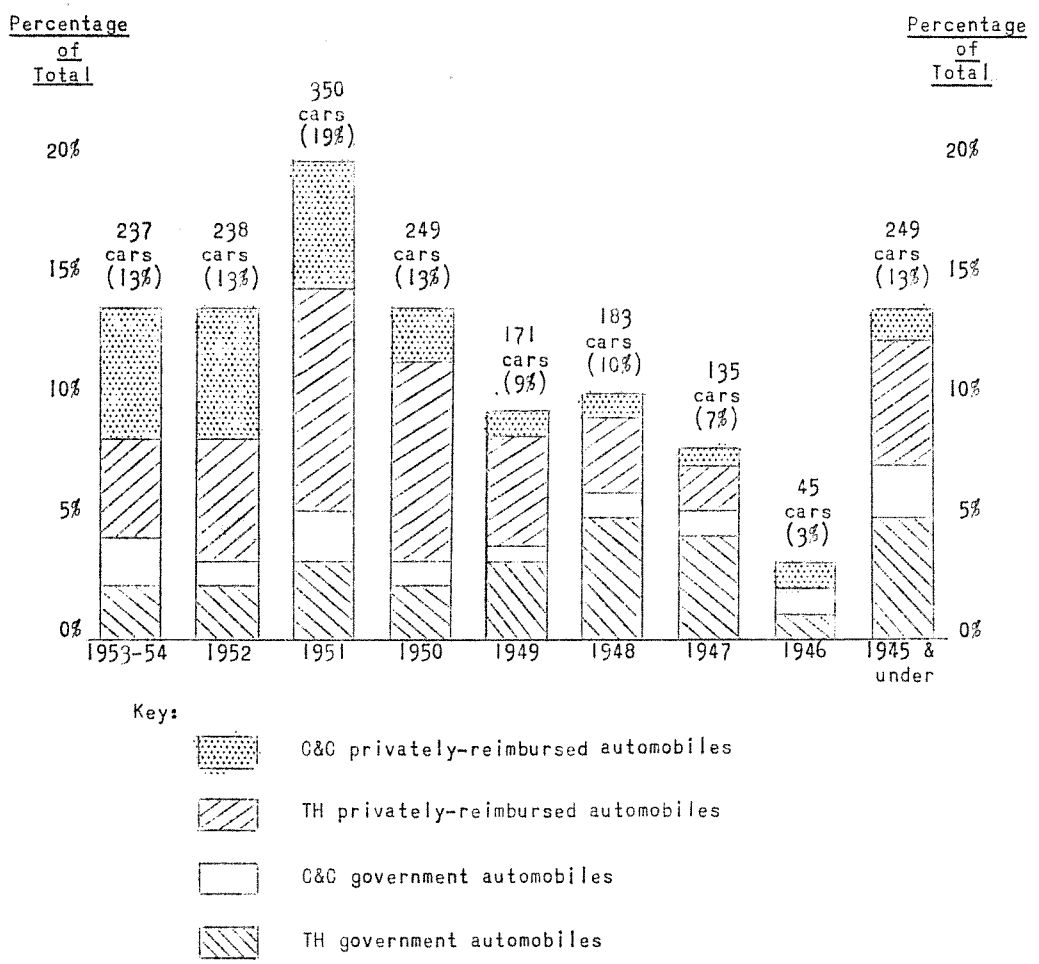
% Response:
100% response for all vehicles.

A much larger percentage of government cars are pre-World War II cars than are privately-reimbursed cars. Of the government cars, the City and County has a higher percentage of cars of years 1950-1954 and pre-1945 than the Territory. As will be pointed out in Part IV of this report on COSTS, the age of the vehicle bears a direct relation to the total costs of operation.

The following chart shows the relationship between publicly-owned and privately-reimbursed automobiles in the Territory and the City and County in terms of the percentage that each is of the total number of all cars:

Chart 4

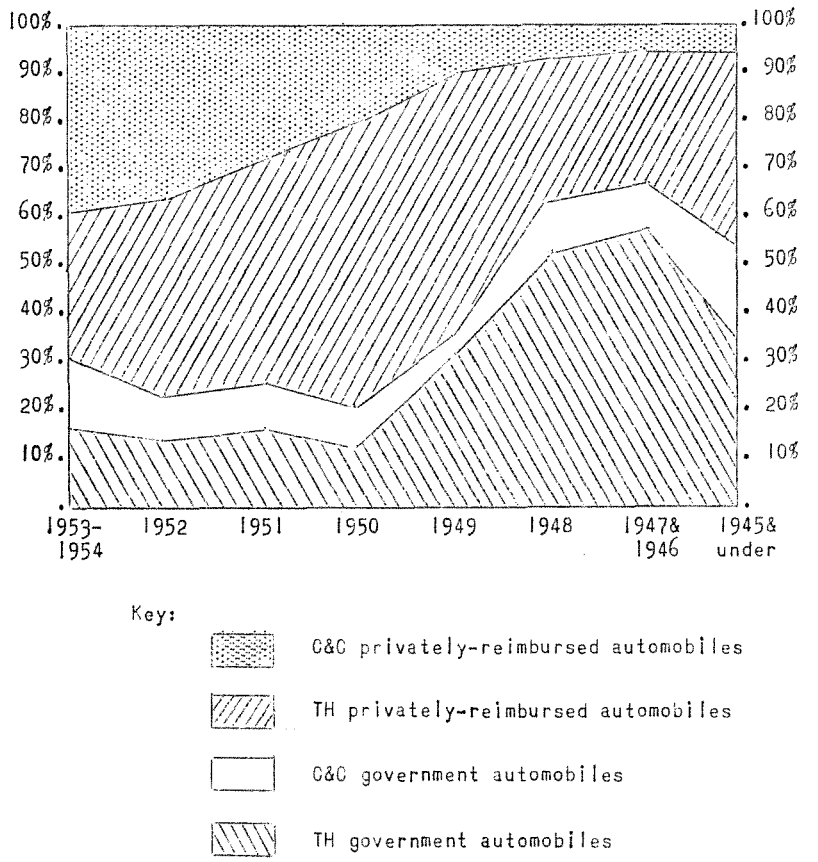
AGE OF AUTOMOBILES USED IN 1953
FOR GOVERNMENT TRANSPORTATION
(as % of all cars)



A different graphical view of the distribution of vehicles by age shows even more strikingly the tendency of government vehicles to be older than privately-reimbursed vehicles. The following chart shows for each year the number of public and private vehicles in the Territory and the City and County as a percentage of all cars of that year (100%):

Chart 5

AGE OF AUTOMOBILES USED IN 1953
ON GOVERNMENT BUSINESS
(as % of total cars in each year)



D. LOCATION OF TERRITORIAL CARS) Sixty per cent of both publicly-owned and privately-reimbursed vehicles used by the Territory of Hawaii are found on the island of Oahu. The next largest percentage of vehicles, both public and privately-reimbursed, is found on Hawaii where 20% of the Territorial public automobiles and 19% of the privately-owned vehicles are located. The remainder of public vehicles on the outside islands are used on Maui, Kauai, Molokai, and Lanai, in that order.

Table 13

LOCATION OF TERRITORIAL AUTOMOBILES AND PRIVATELY-REIMBURSED VEHICLES BY ISLAND

Location	Number of Government Vehicles	% of Government Automobiles	Number of Privately-Reimbursed Vehicles	% of Private Automobiles
Oahu	294	59%	481	61%
Hawaii	94	19%	156	20%
Maui	52	10%	73	9%
Kauai	37	7%	54	7%
Molokai	17	3%	18	2%
Lanai	1	1%	1	(
Not indicated	1	1%	6	(1%
2 islands	-	-	5	(
	496	100%	794	100%

There appears to be a great similarity in the costs of operating Territorial vehicles on all the islands. The only major difference between Oahu and the outside islands seems to be in the total mileage of government vehicles--outside island automobiles are being driven slightly more than vehicles on Oahu.

The type of reimbursement follows a similar pattern throughout most of the islands--96% of the Territorial employees being reimbursed by mileage and the balance reimbursed on a flat rate basis. However, on the island of Molokai 56% of the employees receive a flat rate allowance for car usage, but most of these are allowances under $15.00 per month paid to patient/workers at Kalaupapa.

IV.

Costs of Operating Government Automobiles--Costs of Reimbursing Employees for the Use of Private Automobiles

In order to analyze the costs of operating automobiles it is important to investigate both the cost compared to the number of miles driven (the cost per mile) and the components of the total cost--gas, oil, insurance, repairs, etc. In this way, the standard of mileage-divided-into-total-costs allows comparisons between different types of vehicles and uses, while exact costs for specific services allows a full knowledge of how the car is being used, serviced, and reductions that may be possible.

A. COST PER MILE

(1) Government Cars: The cost per mile for a government car is significant only insofar as all mileage driven by that car is necessary. For the purposes of the survey, it was assumed that all mileage reported was for necessary government service.

In general, we have found that government automobiles in the Territory have a mean cost per mile of $.0860 while City and County cars have a mean cost per mile of $.0837 with the Police Department included--$.0852 without the Police Department.[15] In terms of mean cost per mile, these two jurisdictions are extremely close.

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[15]Seventy cars in the City and County (37%), maintained by the Automotive Equipment Division carry a charge for "overhead" which includes bookkeeping expenses, yard expenses, etc., not a part of the other cost items shown. Since these charges are unique for these vehicles, costs in all cases have been computed without this charge. Also, it is probable that other departments are not allocating these costs to automobile expenses. "Overhead" charges total $1,684.46 per month or $.0377 per mile to those 70 cars being "rented". Those cars using the Automotive Equipment Division of the City and County average $.1259 per mile while those vehicles not using the Automotive Equipment Division average $.0818 per mile. Including "overhead" costs, all City and County vehicles average $.0975 per mile.

This cost per mile includes gas, oil, servicing, replacement, repairs, miscellaneous costs, and depreciation but not insurance or licenses. To assure comparability with the cost of operating private cars, a standard weighting charge for agencies purchasing gasoline at below cost figures has been calculated.

"Servicing" includes washing, greasing, lubrication, switching tires, repair of flat tires, etc.

"Replacement" includes purchase of batteries, tires, tubes, spark plugs, lights, etc.

"Repairs" include labor and cost of parts for repairs to body or motor, painting, etc.

"Depreciation" has been calculated on the basis of 12% of the original purchase price per year for total depreciation over a period of 8 1/3 years, except for police cars. This formula is used for Federal Government automobiles and by the Board of Water Supply. Depreciation for police cars has been calculated on a shorter basis because of the intensive use made of those cars. As there is a five-year compulsory trade-in for all police vehicles, 20% per year has been calculated as depreciation for police cars.[16] Twenty per cent depreciation per year is used by the Internal Revenue Department of the Federal Government for tax purposes, Honolulu Rapid Transit Company, and the City and County Automotive Equipment Division.

To make these costs per mile comparative with those of governmental employees reimbursed for the use of their own cars, insurance and license fee/weight tax must be added. An approximate $.003 per mile for insurance[17] and an estimated

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[16]It should be noted that apparently most police vehicles, especially private vehicles used for police work, are traded in much sooner than the five-year compulsory period in order to benefit from higher trade-in values and to avoid the repair costs of older vehicles.

[17]Estimate based on monthly cost of fleet policy of Territory per vehicle divided by average monthly mileage--$50/100,000 for liability and property damage, $2.03 per month ($24.32 per year) ÷ 642 miles in the Territory of Hawaii and 781 miles in City and County = $.003 per mile. Jurisdictions are self-insured for collision, which is reflected in repair costs.

$.002 for licenses[18] raises comparative government costs to approximately 8 1/2-9¢ per mile for both Territorial and City and County cars.

Table 14

TOTAL COST PER MILE FOR GOVERNMENT AUTOMOBILES

	Territory of Hawaii	City and County
Variable Costs (including gas, oil, repairs, replacement, and miscellaneous costs):		
Mean	$ .0494	$ .0575
Median	.0354	.0473
Range	.0087 - .3777[a]	.0221 - .1660
Middle 50%	.0252 - .0550	.0394 - .0690
Number cars reporting	474 (96%)	180 (96%)
Standard Costs (including above plus depreciation and weighting charges):		
Mean	$ .0860	$ .0837
Median	.0675	.0723
Range	.0201 - .4166[b]	.0307 - .2815
Middle 50%	.0478 - .0998	.0568 - .1023
Number cars reporting	467 (94%)	171 (91%)
Adding standard charge for Insurance and Licenses ($.005):		
Mean	$.0910	$.0857
Median	.0735	.0773

[a]One extreme score of .6317 not included because unrepresentative of true range of scores.
[b]Three extreme scores of .5075, .5734, and .6708 not included.

Both jurisdictions show a broad range in cost per mile with high costs influencing the mean score more than they affect the median score. Due to extremes,

[18]License fees estimated at $1.50 per month or $18.00 per year (at ½¢ per lb.) for 3600 lb. vehicle which is probably slightly high as most government vehicles are lighter weight. Cost per mile for license fees obtained by dividing estimated cost by mean monthly mileage of 642 in Territory of Hawaii and mileage of 781 in City and County.

the mean cost per mile for City and County public cars is slightly lower than that of the Territory, taking into account depreciation and weighting charges. However, when the extremes are eliminated from such comparison by using medians, the mid-point City and County costs are higher than Territory of Hawaii costs. For purposes of comparison with privately-reimbursed cars, the higher mean figure has been used.

Extreme scores may be the result of several factors: high repair costs due to an accident; flat allowances not reflecting true mileage patterns; etc. Only the whole sample reflects the general use; individual extremes are not representative of the whole jurisdiction.

Perquisites to Employees. In addition to the use of government car for business, some employees are allowed to take a government car home at night either as a convenience to the government because of parking space limitations or because the nature of the employee's job requires a car for irregular hours or emergency use. Although part of the true cost per mile, it is difficult to calculate a definite value for this practice.

Fifty-four out of 269 Territorial automobiles on Oahu reporting are taken home at night.[19] Since 12 of these vehicles work directly from home, only 42 cars (16%) reporting drive between governmental offices and home. One hundred and two City and County employees (57%) take government cars home at night.[20]

In terms of total mileage reported for May, 1954, travel to and from work alone accounted for about 8% of all Territorial mileage on Oahu and 16% of all

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[19]Only cars on Oahu surveyed on question. 269 responses out of 294 Territorial automobiles on Oahu reported--91%.

[20]179 out of 188 City and County vehicles reported--95%.

City and County mileage in that month excluding the Police and Fire Departments.[21]

Although the outside islands are not included in the above figures, it has been suggested that more Territorial vehicles are taken home at night on the outside islands because of inadequate transportation facilities.

(2) Private Cars: For those privately-reimbursed vehicles which turnedin mileage data, the total cost per mile for reimbursing private vehicles used on government business is $.0990 in the Territory of Hawaii and $.0931 in the City and County of Honolulu excluding the Police Department. This figure includes all reimbursement and the value of all perquisites. Perquisites are insignificant except for the Police Department.

Including the Police Department within the City and County totals reduces the cost substantially. With the Police Department included, the cost per mile without perquisites in the City and County is $.0621 and with perquisites it is $.0823. The Police Department lowers this total figure because of the predominance of high mileage vehicles paid on a flat rate basis rather than by mileage payment. As is indicated later in the report, high mileage substantially reduces the cost per mile.

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[21] 34 out of 42 Territorial cars taken home turned in trip tickets--81%. 80 out of 102 City and County cars taken home turned in Trip Tickets--78%.

Table 15

COST PER MILE FOR ALL REIMBURSED AUTOMOBILES IN TERRITORY OF HAWAII AND CITY AND COUNTY OF HONOLULU

	Territory of Hawaii	City and County Excluding Police Department	City and County Including Police Department
Without Perquisites:			
Mean	$ .0989	$ .0922	$ .0621
Median	.0997	.0960	.0467
Range	.0503 - .1435[a]	.0500 - .1382	.0254 - .4316
Middle 50%	.0932 - .1000		.0387 - .0722
Number reporting	766 (96%)	60 (59%)[b]	338 (89%)
Including Perquisites:			
Mean	$ .0990	$ .0931	$ .0823
Median	.0997	.0965	.0705
Range	.0503 - .1435	.0553 - .1382	.0474 - .4656
Middle 50%	.0932 - .1000		.0617 - .0875
Number reporting	766 (96%)	60 (59%)[b]	337 (89%)

[a] Three extreme responses of $.8380, $.8725, and $.9120 per mile not included because not representative of real range of scores.

[b] Low percentage response to question due to many employees on flat rate allowance not being required to keep mileage data.

The grouping of scores in the middle 50% bracket after perquisites are included indicates that in both jurisdictions there is fairly great similarity in cost per mile for most employees. The broad range of payments revealed by the survey is significant in revealing that inequities exist. Most of the high costs per mile are found associated with cars on flat rates rather than mileage payments.

These comparative figures also indicate that the inclusion of perquisites only adds a siginificant amount when computing the cost per mile for the City and County, and then only when the Police Department is included.

(3) Comparison of Cost Per Mile (publicly-owned and privately-reimbursed cars): On the average, it costs the government almost the same amount per mile to operate a government automobile or to reimburse an employee for the use of his private vehicle.

It costs about 8 1/2-9¢ a mile to operate a government vehicle, which compares to the reimbursement of private vehicles at 9-10¢ per mile. In other words, employees are in general receiving an amount that compares with--if not being slightly higher--than what it would cost the government to operate a public vehicle.[22] Of course, it must be remembered that averages do not reflect the particular costs of any individual case. Although the mean cost per mile of government cars is similar to the mean payment to employees for the use of their vehicles, any particular employee may be paying much more or less for the operation of his car.

B. ITEMIZED COST BREAK-DOWN

(1) Government Cars: The total mean cost per car to the Territory of Hawaii each month is $44.63 while the City and County pays $74.07. The median monthly cost per car in both jurisdictions is less than the mean which indicates that atypical high costs significantly affect the scores.

Although the total cost per month for City and County cars is higher (at least in good part due to the more extensive use made of the automobiles), it has been previously pointed out that the cost-per-mile for vehicles of either jurisdiction is similar.

The mean monthly cost for government cars includes:

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[22]A recent "Survey of Mileage and Travel Allowances in 48 States" shows that of 32 states paying mileage--25 pay 7¢ per mile, 4 pay 7 1/2¢ per mile, and 3 pay 8¢ per mile. No state pays more than 8¢ per mile. Juanita Sorenson, "The Public Employee," American Federation of State, County, and Municipal Employees, Vol. 18, No. 1 (January, 1954), pp. 8-10.

Table 16

AVERAGE MONTHLY COSTS[a]

Mean Cost For:	Territory of Hawaii	Out of 496 Cars Reporting	City and County	Out of 188 Cars Reporting
Gasoline	$12.39	490 - 99%	$20.55	188 -100%
Oil	.82	478 - 96%	1.11	172 - 91%
Servicing	1.65	436 - 88%	6.50	172 - 91%
Replacement	3.11	436 - 88%	4.48	172 - 91%
Repairs	5.65	435 - 88%	16.82	172 - 91%
Miscellaneous Costs	.35	440 - 89%	.35	187 - 99%
Depreciation[b]	16.37	486 - 98%	19.49	179 - 95%
Weighting Charge[c]	.76	496 -100%	1.24	188 -100%
Insurance[d]	2.03		2.03	
License[e]	1.50		1.50	
	$44.63		$74.07	

[a]Based on actual figures reported for each item. Number of cars included in each specific item differs. Number reporting and percentage response included for each item.

[b]Depreciation could only be calculated for those automobiles indicating purchase price. Cars over 8 1/3 years considered totally depreciated (5 years for police cars). See p. 18 for method of calculating Depreciation.

[c]Total Weighting Charge included for Territory $376.97 for 282 automobiles or an average of $1.33 per each vehicle obtaining gas at special pumps. Average included is total Weighting Charges divided by total vehicles.

Total Weighting Charge included for City and County of Honolulu $233.27 for 93 automobiles or an average of $2.50 per each vehicle obtaining gas at special pumps. Average included is total Weighting Charges divided by total vehicles.

[d]Standard Insurance charge for each vehicle. See p. 18, footnote 17 for method of calculating.

[e]Standard License charge for each vehicle. See p. 19, footnote 18 for method of calculating.

Gasoline and Oil: The total monthly cost of gasoline and oil is higher in the City and County than in the Territory because City and County cars are averaging more miles each month. Governmental cars in Hawaii range from 4 to 246 gallons of gasoline each month and from 0-18 quarts of oil. The median gasoline gallonage of Territorial automobiles is 39 gallons and for the City and County 56 gallons whereas the median number of quarts of oil used by the Territorial and City and County automobiles is 2 and 3 quarts, respectively, each month.

Servicing: Higher servicing costs in the City and County could be a result of the higher mileages or might reflect a misclassification of services included in this category. Servicing costs appear to have little relationship to the age of the car or the make or model.

Replacement: Costs of replacement tend to vary with the age of the car and are similar in both jurisdictions.

Repairs: Costs of repairs are significantly higher in the City and County than in the Territory of Hawaii. This may be due to higher costs; cars kept in better condition, etc. To the extent that agencies repair their own vehicles but do not charge all costs of repairs (i.e: labor, clerical time, etc.) to the vehicle, repair figures are unreliable.

It appears that those cars being repaired by the Automotive Equipment Division of the City and County average slightly higher repair costs than those using other facilities. The average monthly cost (mean) for repairs for City and County cars using the Automotive Equipment Division is $17.88 while the mean for those using other repair services is $16.09.

In both jurisdictions the cost of repairs covers repairs occasioned by collision due to both jurisdictions being self-insurers and in effect carrying their own collision insurance.

Depreciation: Depreciation costs reflect the fact that City and County vehicles are younger than Territorial vehicles and were purchased when prices were higher. Also reflected is the higher depreciation ratio calculated for police vehicles.

ALTHOUGH AVERAGE COSTS FOR GOVERNMENT VEHICLES ARE INDICATIVE, IT MUST BE NOTED THAT THERE ARE WIDE DIVERGENCIES BETWEEN THE COSTS FOR CARS WITH DIFFERENT MILEAGES, THE TYPES OF WORK FOR WHICH THEY ARE USED, THE AGE OF THE VEHICLE, ETC.

-1. Mileage. The most significant factor in determining cost per mile is the amount of miles the car is driven each month. There is a positive relationship between higher mileages and lower cost per mile.

The average Territorial automobile registers 642 miles per month while the mean mileage for government automobiles in the City and County is 781 miles per month. At the same time the range of miles reported is extremely great: government vehicles in the Territory of Hawaii drive from 46 to 1,820 miles each month while City and County automobiles range from 151 to 3,128 miles per month. Including all costs for gasoline, oil, servicing, repairs, replacement, and miscellaneous costs (excluding depreciation, insurance, and the standardized weighting charge for gasoline) the following table shows the relationship of cost per mile with miles driven.

Table 17

COMPARISON OF MONTHLY MILEAGE AND COST PER MILE OF VARIABLE CHARGES*

Number Miles Per Month	COST PER MILE: All Government Cars	# cars	Territory of Hawaii	# cars	City and County	# cars
0 - 250	$.0875	(78)	$.0866	(75)	$.1104	(3)
251 - 500	.0567	(158	.0524	(132)	.0771	(26)
501 - 750	.0463	(162)	.0403	(103)	.0569	(59)
751 - 1000	.0545	(114)	.0376	(79)	.0628	(35)
1001 - 1250	.0375	(63)	.0333	(38)	.0439	(25)
1251 - 1500	.0377	(35)	.0367	(29)	.0426	(6)
Over 1501	.0380	(44)	.0312	(18)	.0427	(26)
Average all cars	.0516	(654)	.0494	(474)	.0575	(180)
% Response		96%		96%		96%

*Includes all variable costs of gas, oil, servicing, repairs, replacement, and miscellaneous costs. Table 18, below, includes also standard costs of Depreciation and Weighting Charges.

Including depreciation and standardized weighting charge for gasoline, the inverse relationship of cost to total government car mileage is even more pronounced:

Table 18

MONTHLY MILEAGE AND TOTAL COST PER MILE*

Number Miles Per Month	COST PER MILE: All Government Cars	# cars	Territory of Hawaii	# cars	City and County	# cars
0 - 250	$.1583	(78)	$.1587	(75)	$.1499	(3)
251 - 500	.0976	(155)	.0947	(129)	.1120	(26)
501 - 750	.0758	(158)	.0692	(102)	.0877	(56)
751 - 1000	.0690	(110)	.0608	(78)	.0891	(32)
1001 - 1250	.0549	(59)	.0531	(37)	.0578	(22)
1251 - 1500	.0535	(35)	.0522	(29)	.0601	(6)
Over 1501	.0541	(43)	.0452	(17)	.0599	(26)
Average all cars	.0854	(638)	.0860	(467)	.0837	(171)
% Response		93%		94%		91%

*Includes all costs except insurance and license fees.

Since including standard charges for insurance and license fees would only tend to increase the significant ratio between low cost per mile and greater mileage, it was not felt necessary to include them with the other charges in the above tables.

From these comparisons, it appears that more intensive use of all government cars might well reduce the cost per mile to the government for the operation of automobiles. It must be recognized that there are some functions which continuously need vehicles but only for a few miles per month. The assignment of older vehicles to these low mileage uses in order to cut down repair costs of older vehicles and take advantage of the fact that these cars would be fully depreciated, would also result in savings. Also, low mileage government vehicles might achieve additional mileage by other methods than developing new needs for automobile use. Those vehicles which are not used continuously during the day could be made available to employees now reimbursed for use of their own cars when these cars register only small mileages during the month. This would both reduce the cost per mile for government car use as well as accomplish a reduction of the total amount spent for private reimbursement.

In addition, government automobiles with low monthly mileages could be reallocated and employees now using them be entitled to reimbursement for their own cars. This could lead to a reduction in the total number of government vehicles.

It appears that consideration should be given to re-assigning to a more intensive use any government vehicle that maintains a monthly mileage of less than 500-750 miles per month, and of transferring the employee(s) using it to a reimbursement basis. Other things being equal, any employee reimbursed for mileage of over 500-750 miles each month might well be considered available for assignment

to a government vehicle.[23]

-2. Age and Cost. Age of cars, as well as monthly mileage, affects the costs of operation. Older cars tend to cost more than younger vehicles for two reasons--the repair costs are higher for older automobiles and older cars are driven less than younger vehicles. (The latter may reflect the practice of a few agencies of assigning these vehicles to low mileage uses.)

Repairs on cars by age. The mean repair cost per month for cars of 1-4 years of age in the Territory of Hawaii is $3.87 while the mean repair cost for cars 5 years of age and more is $6.43, an increase of 66%. It has been noted that repairs in the City and County are more expensive, and this is reflected in a smaller percentage of increase. While City and County vehicles 1-4 years of age have a mean monthly repair cost of $15.18, those over 5 years of age have a mean cost of $18.67 for monthly repairs, an increase of only 23%. Older cars cost more for repairs in both jurisidictions.

Mileage and age of car. In both jurisdictions, monthly mileage of vehicles varies with age. The most intensive use is made of cars up to 5 years and the mileage tapers off with older vehicles. While the median mileage in the Territory of cars 1, 2, and 3 years of age is 692, 644, and 820 miles per month, respectively, cars 8, 9, and 10 years of age and over, have median mileages of only 234, 266, and 310 miles each month. This same pattern is true for the City and County of Honolulu: the highest mileage vehicles are 3 years old with a median mileage of

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[23]Although most police employees drive their private automobiles over 500-750 miles each month, they are paid on a flat rate basis which does not equal the 9 1/2-10¢ per mile paid to most government employees in Hawaii. High monthly mileages, however, will substantially reduce the total cost per mile.

1,048 miles while the lowest median mileage is 567 miles for cars over ten years old.[24]

Older cars may not be driven as many miles as other cars for several reasons: they are assigned to low mileage uses; they are not as reliable for extensive travel; the need for repairs keeps them from continuous use; etc. Whatever the reason, it has been pointed out that low mileage vehicles cost more per mile to operate than higher mileage vehicles.

-3. Make of Car and Cost Per Mile. It was found that the 8 Territorial bantam cars maintain the lowest mean cost of only 6 1/4¢ per mile independent of the total monthly mileage. Differences in cost per mile of other makes of cars were more related to mileage.

B. ITEMIZED COST BREAK-DOWN (Cont.)

(2) Private Cars: Payments to employees for the use of their automobiles may be both in the form of monetary payment such as mileage reimbursement or flat allowance and through indirect payments in the form of perquisites, such as reduced costs for gasoline, insurance, etc. During 1953, the Territory of Hawaii reimbursed 794 employees for the use of their vehicles while the City and County reimbursed 379 employees. Of these employees, perquisites were given to only a very small percentage in both jurisdictions.

-1. Methods of Reimbursement. Reimbursement rates paid to employees in Hawaii vary greatly. There seem to be no standardized methods for determining whether mileage or flat rate reimbursements will be given. Most employees who receive mileage reimbursement for the use of their automobiles, receive 10¢ per mile for the first 200 miles each month and 8¢ per mile thereafter. A few em-

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[24]Although there was one City and County car 9 years old, and it had a monthly mileage of 239 miles, it was not included because there were not enough vehicles in the category to compute a measure of central tendency.

ployees were reported as receiving a straight 10¢ per mile. Flat rate payments vary from less than $15.00 per month to $120.00 per month.

Ninety-six per cent of Territorial employees receiving reimbursement are paid on a mileage basis. The 4% receiving flat allowances for automobile usage receive an average payment of $30.00 per month or a median payment of $28.00 per month. On the other hand, the City and County uses the flat allowances for 89% of their reimbursed employees and only 11% of the City and County employees receive payment on a mileage basis. The average and median rates of reimbursement in the City and County are much higher than the Territory--the mean rate being $62.00 per month and the median rate $75.00 per month. Excluding the Police Department from the City and County, this pattern changes since the Police Department pays all employees on a flat allowance depending on the type of work[25] and a large proportion of all City and County employees reimbursed are in the Police Department. Of the 101 employees in the City and County other than police who were reimbursed for the use of their automobiles during 1953, 42% were paid a mileage rate (mainly 10¢ for the first 200 miles and 8¢ thereafter) while 58% received monthly allowances that averaged $47.69 per month. The median rate of monthly reimbursement for these employees was $55.00.

The average reimbursement in the Police Department is $65.00 and the median reimbursement is $75.00.[26] Police reimbursements range from $35.00 to $80.00 per month. It must be noted that most of the perquisites reported as paid to government employees were furnished to policemen, so their total reimbursement must be considered as including additional perquisites reported in the next section.

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[25]The Police Department reported that because of the nature of the work and the extensive mileage needed in some types of duty, it considers it better from a morale standpoint to pay the same amount per month to all employees with the same duty.

[26]Received by 66% of all police using automobiles on government business.

To reimburse employees, the Territory of Hawaii uses mileage payments for the great majority of employees while the City and County uses flat allowances for most employees. Flat allowances per month are higher in the City and County than in the Territory of Hawaii.

Table 19

TYPE OF REIMBURSEMENT
EXCLUDING PERQUISITES

Type of Reimbursement	Number of Employees Receiving both Jurisdictions	Territory of Hawaii	City and County	
			Without Police Department	Police Department, Only
Total on Mileage:	804 (69%)	762 (96%)	42 (42%)	-- -----
1. 10¢ for first 200 miles, 8¢ thereafter per month	795	756	39	
2. 10¢ per mile	9	6	3	
Flat Rate Reimbursements Per Month:				
1. Under $15.00	13	10*	3	--
2. $17.00	1	1	--	--
3. 18.00	1	--	1	--
4. 20.00	2	--	2	--
5. 22.00	1	--	1	--
6. $23.00	1	--	1	--
7. 25.00	11	4	7	--
8. 30.00	4	--	4	--
9. 32.00	1	--	1	--
10. 35.00	23	9	1	13
11. $37.00	1	--	1	--
12. 40.00	3	--	3	--
13. 43.00	1	--	1	--
14. 45.00	55	--	--	55
15. 46.00	1	--	1	--
16. $48.00	1	--	1	--
17. 50.00	7	6	--	1
18. 55.00	15	--	8	7
19. 60.00	35	--	10	25
20. 65.00	11	--	8	3
21. $70.00	5	--	--	5
22. 75.00	168	2	--	166
23. 80.00	3	--	--	3
24. 85.00	3	--	3	--
25. 90.00	1	--	1	--
26. $110-120	1	--	1	--
Total on Flat Rate:	369 (31%)	32 (4%)	59 (58%)	278 (100%)
Total Employees Reimbursed:	1173	794	101	278

*Mainly on Molokai to patient workers.

Type of reimbursement--cost per mile--miles per month. Total reimbursable monthly mileage was available for those employees paid on a mileage basis, but only a few employees on flat allowances turned in mileage figures. The mean monthly reimbursed mileage for those on mileage payments (generally 10¢ for first 200 miles and 8¢ thereafter each month) is 200 miles in the Territory of Hawaii and 376 miles in the City and County.

Because the mean reimbursed mileage for ALL vehicles reporting (both mileage and the few on allowance reimbursements turning in mileage figures) is slightly higher than the mileage of only employees receiving mileage reimbursement in both jurisdictions, it indicates that those on flat rate payments for which records are available are driving slightly more miles each month than those on mileage payments. It must be noted, however, that employees who drive only a few miles each month but are paid on a flat rate basis might hesitate to turn in mileage figures, so that this assumption of higher mileage may be unwarranted. The mean monthly reimbursed mileage for all types of reimbursement reported is 205 miles per month in the Territory of Hawaii and 442 miles in the City and County.

Table 20

AVERAGE REIMBURSED MILEAGE

	Territory of Hawaii	City and County
Mean reimbursed miles --all employees reporting	205	442
Mean reimbursed miles --mileage reimbursement	200	376
Theoretical mean reimbursed miles --flat allowances	325[a]	421[b]

[a]Estimated on basis of average flat rate allowance of $30.00 computed by converting to mileage payment of 10¢ for first 200 miles per month and 8¢ thereafter. Not enough data turned in by employees on flat rate to actually calculate this figures.

[b]Estimated on basis of average flat rate allowance of $47.69 computed by converting to mileage payment of 10¢ for first 200 miles per month and 8¢ thereafter. Of those employees turning in figures, mean mileage indicated at 222 miles per month, or less than mileage reimbursed cars.

Of total City and County employees turning in mileage figures, 42% of the employees are on mileage and drive 63% of total miles while 58% of City and County employees are on flat allowances but only drive 37% of total monthly miles.

Percentage reimbursed. Employees who were reimbursed were asked to indicate their average total monthly mileage--that is, private use of their own cars as well as use on government business. Comparison has been made of total monthly miles and reimbursed miles for these government employees. Two hundred and forty-seven out of 294 in the Territory on Oahu and 320 out of 379 in the City and County (84% in each case) were able to report total monthly mileage on the questionnaires.

Half the employees in the Territory reporting receive reimbursement for over 27% of their total mileage; the other half fall below this percentage. The median percentage of miles reimbursed in the City and County is 75%. This means City and County employees including policemen and firemen who are reimbursed report they drive their cars mainly on governmental business for which they receive reimbursement and relatively little on their own private affairs. Excluding the Police Department, City and County employees are reimbursed for 41% of their total monthly mileage.

Table 21

PERCENTAGE OF REIMBURSEMENT FOR THE USE OF PRIVATE AUTOMOBILES

Percentage of Total Monthly Miles Reimbursed	Territory of Hawaii		City and County*	
	#	%	#	%
0 - 10	55	22%	3	1%
11 - 20	53	21%	8	3%
21 - 30	24	10%	7	2%
31 - 40	19	8%	5	1%
41 - 50	22	9%	5	1%
51 - 60	28	11%	18	5%
61 - 70	29	11%	66	21%
71 - 80	12	5%	130	41%
81 - 90	4	2%	69	22%
91 - 100	1	1%	9	3%
	247	100%	320	100%

*Includes Police and Fire Departments.

Type of reimbursement and classification. Flat rate allowances for automobile usage are more prevalent among those employees above GS-7 than those below. In the Territory of Hawaii, no employee below a GS-7 receives a flat rate reimbursement although many in those classifications use vehicles. The same pattern is true in the City and County, the higher the classification the more likely that flat allowance rather than mileage reimbursement will be made for the use of the employee's vehicle. This implies that a flat allowance may be authorized, in part, in consideration of status or as extra salary rather than being solely related to mileage driven on government business. Further investigation might reveal that some car allowances may be classed as perquisite of employment rather than as reimbursement for automobile usage.

-2. Perquisites Given by the Territory of Hawaii and the City and County of Honolulu in Addition to Mileage Allowances for Car Usage. The average amount paid to Territorial employees in 1953 for the use of their automobiles was $17.74 per month. This cost varied from $1.00 to $75.00 per month; most employees being paid at the lower end of the scale as the median reimbursement is only $9.67. The mean payment to Territorial employees including perquisites was $17.81, so that the mean cost of perquisites per employee was only an additional $0.07 per month.

Actually, only three Territorial employees received any additional perquisites over mileage reimbursement. These perquisites total $55.35 per month or a mean cost of $12.83 to the three employees receiving them:

Cost of Perquisite	Perquisite
1. $00.50 per month	An occasional wash and check at government servicing area.
2. $25.30 " "	Not indicated.
3. $29.55 " "	Not indicated.
$55.35 per month	

The average monthly payment to employees using their own automobiles in the City and County of Honolulu during 1953 was $41.57 excluding police (or $52.16 including the police). Perquisites in the City and County are paid only to policemen and totalled $8,386.19 per month for free gas, oil, insurance, and license plates. The average perquisite payment in the Police Department of $30.17 in addition to an average allowance of $65.00 means that the average policeman receives a value of $95.17 per month for the use of his automobile.

Table 22

PRIVATE REIMBURSEMENT AND PERQUISITES

	Territory of Hawaii	City and County Without Police Department	City and County With Police Department
# cars:	(794)	(101)	(379)
% response:	100%	99%	99%
TOTAL COSTS			
Total monthly reimbursement costs.	$14,089.24	$4,198.41	$19,770.14
Total monthly perquisite costs.	55.35	-----	8.386.59
Monthly total, all costs*	$14,144.59	$4,198.41	$28,156.73
MEAN COSTS			
Mean monthly reimbursement costs.	$ 17.74	$ 41.57	$ 52.16
Mean monthly perquisite costs.	0.07	-----	22.13
Mean monthly payment per employee	$ 17.81	$ 41.57	$ 74.29

*See Table 9, p. 8, for monthly total cost including government vehicles.

Not included in this evaluation of perquisites are such privileges as allowing employees to travel to and from lunch and to and from home at government expense.

Seventy Territorial and 12 City and County employees are reimbursed for travel to and from home in their own automobiles. Most of these employees are on flat rate rather than mileage reimbursements.

Twelve employees are reimbursed by the Territory for travel to and from lunch and all policemen using private vehicles and one other City and County employee (279 in all) are reimbursed for travel to and from lunch.

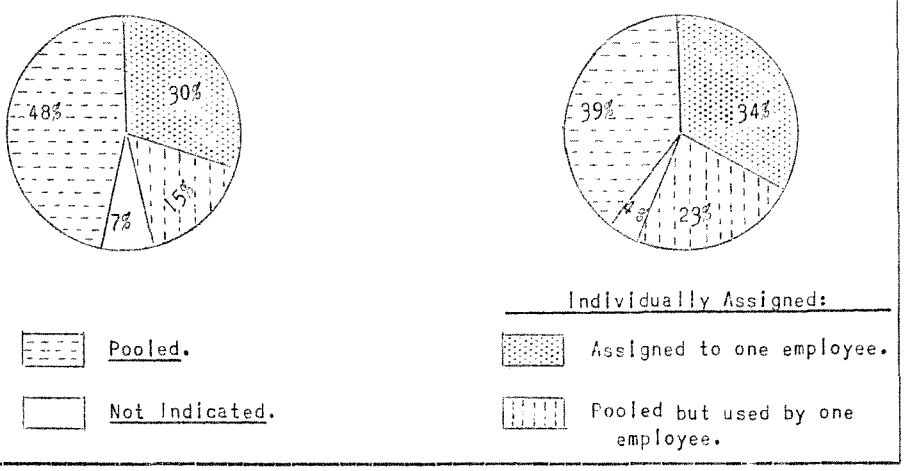
V.

Administrative Practices Governing the Use of Automobiles[27]

A. ASSIGNMENT OF CARS) Generally, government automobiles are either operated by one individual or pooled for the use of a number of employees.[28] Of the 274 reporting (93%), Territorial vehicles on Oahu, it was

Chart 6

ASSIGNMENT OF GOVERNMENT AUTOMOBILES



[27]Those data concerning administrative practices were obtained by personal interview for all the City and County and Territorial automobiles on the island of Oahu only. 294 out of the 496 Territorial vehicles are included in the remainder of the data.

[28]Automobiles were treated as pooled if operated by more than one employee with the responsibility for its use--including scheduling and maintenance--resting with the division or department. If assigned to the exclusive use of one individual, that employee may or may not be responsible for its maintenance. It was found that some vehicles were assigned to pools but operated by only one individual. These have been calculated as individually assigned vehicles, because when not in use by the individual assigned, they remained idle.

found that 133 are assigned to individuals and 141 are pooled. Of the 133 assigned to individuals, 87 might technically be called "pooled" but were found to be used by only one employee.

Relatively, the City and County government makes less use of pooled automobiles. Of the total 181 reporting (96%), 65 are assigned directly to individuals, 43 are called "pooled" but are used by one employee, and 73 are used by more than one employee.

At the present time, it appears that pooled cars are being used for less mileage per month in the Territory than in the City and County.

Since pooled cars could be in use during most of the working day, it was anticipated that pooled vehicles would have a much higher mean monthly mileage than individually assigned vehicles. This was found to be a fact in the City and County; just the opposite prevails in the Territory. It would seem Territorial-pooled vehicles are not being used fully or the work assigned to pooled vehicles is mostly of low mileage requirements.

Table 23

MILEAGE OF CARS BY ASSIGNMENT

Assignment	Mean Monthly Mileage	
	Territory of Hawaii	City and County
Individually assigned*	701	797
Pooled	546	1,189

*Includes both individually assigned vehicles and pooled vehicles used by only one employee.

Assignment and cost per mile: neither jurisdiction shows a saving in cost per mile for pooled vehicles. The cost per mile of pooled and assigned vehicles is substantially the same in the City and County, while pooled automobiles cost

more in the Territory. As stated above, this is probably due to the present lower mileage use pattern of pooled vehicles.

Table 24

ASSIGNMENT AND COST PER MILE

Assignment	Mean Cost Per Mile: Territory of Hawaii	Mean Cost Per Mile: City and County
Individually assigned*	$0.0769	$0.0853
Pooled	0.0923	0.0851

*Includes both individually assigned vehicles and pooled vehicles used by only one employee.

B. CLASSIFICATION OF EMPLOYEES USING CARS

When attention is turned to employees who use government cars, the Territorial and City and County patterns of use are found to be very different. Government cars are individually assigned to employees scattered throughout the City and County classified service whereas individual assignment in the Territory of Hawaii is more concentrated.

The median classification of those employees assigned cars individually in the Territory is GS-6; for employees using City and County vehicles, the median is GS-9. It is difficult to determine how much of the spread or concentration of use is dependent upon the number of total employees in each class or the type of work performed which requires use of vehicles. The median classification of those employees using a pooled vehicle individually is slightly lower than that of those assigned an individual automobile directly--GS-5 for Territorial employees and GS-7 for City and County employees. The following table shows the distribution of individually assigned government automobiles by the classification of the employees who use them:

Table 25

CLASSIFICATION OF THOSE EMPLOYEES INDIVIDUALLY ASSIGNED A GOVERNMENT AUTOMOBILE[a]

Classification	Territory of Hawaii (Oahu)		City and County of Honolulu	
	Number	% of Total	Number	% of Total
GS- 2	2	1½%	1	1%
GS- 3	1	1%	6	6%
GS- 4	3	2%	8	7%
GS- 5	50	38%	11	10%
GS- 6	35	26%	9	8%
GS- 7	19	14%	9	8%
GS- 8	2	1½%	3	3%
GS- 9	1	1%	12	11%
GS-10	4	3%	3	3%
GS-11	4	3%	9	8%
GS-12	3	2%	9	8%
GS-13	2	1½%	15	14%
GS-14	-	-	6	6%
GS-15	2	1½%	-	-
Unclassified[b]	5	4%	7	7%
Total individually assigned:	133	100%	108	100%

[a] Includes both individually assigned vehicles and pooled vehicles used by only one employee.

[b] Unclassified employees include Department of Public Instruction, University of Hawaii, department heads, commission members, etc.

% Response: Territory of Hawaii 100%
City and County of Honolulu 100%

Although there appears to be no relationship between the classification of employees and either the percentage of private mileage reimbursed, when they use their own cars, or cost per mile, when it is a government car, classification of employees does seem to effect the type of car and how they are reimbursed, when it is a private car. Private employees of higher classifications are more often paid on a flat rate rather than a mileage basis when they use their own cars, and

employees in higher classifications are more often assigned medium rather than light weight government vehicles.

C. TYPE OF WORK FOR) WHICH CARS USED) The broad range of functions performed by modern governments is nowhere better illustrated than by the uses to which both publicly-owned and privately-reimbursed automobiles are put. This pattern of use also is indicative of the differences in functions of Territorial (state) and the City and County (local) jurisdictions.

Reasons for authorizing use of vehicles. The most common reasons stated for authorizing the use of private automobiles for government business are: (a) there are not enough government cars available or (b) that there is only an infrequent need for automobile transportation in the particular job. A few other reasons given for the use of private cars include: bus fares are too high; the employee is needed in emergency (although most emergency work appears to be done with publicly-owned automobiles); the identification of government employee was not desirable, as in case work home visits, investigations, etc.; a private car "is more economical" than a public vehicle.

Types of work. The kinds of work to which automobiles are put fall within six major categories:

(a) Administrative/Supervisory work; messenger: requires carrying out administrative errands such as banking, purchasing, carrying payroll, transportation; or supervisory field work, technicians in field; attending meetings, etc.;

(b) Auditing: work requiring regular long stoppage in the field, legal enforcement requiring checking books, etc.;

(c) Construction/Maintenance: includes employees engaged in building government projects and employees engaged in maintaining present facilities;

(d) Inspections: includes employees engaged in health inspections, such as restaurants, food, mosquitoes, plants, employees engaged in gathering water samples, etc.;

(e) Patrol: constant use of vehicle on regular, scheduled routes for law enforcement (mainly policemen but some patrol of government areas such as forests); some rescue and emergency work may be included;

(f) Welfare: employees engaged in field work for community welfare or social welfare--includes social workers, nurses and medical doctors, recreation, etc.

The largest of these groups using government automobiles in the Territory of Hawaii are those employees engaged in inspection work--predominately health inspectors. The largest group of employees using government automobiles in the City and County are those engaged in construction and maintenance. More employees engaged in welfare work use government automobiles in Territory than in the City and County--most welfare work is a function of the Territory of Hawaii.

The general administrative/supervisory; messenger classification accounts for a similar amount of all government automobile usage in the Territory of Hawaii and in the City and County.

Private vehicles are used for different functions than government vehicles. In the Territory, a great deal of administrative/supervisory; messenger work is performed by private vehicles as is the welfare function, whereas in the City and County, police patrol work is the reason given for most of the private automobile use.

About 6% of the government vehicles in the Territory are assigned on the basis of emergency use and 18% of the City and County automobiles are assigned to individuals on the basis of emergency use. During the month of May, 1954, of those public cars reporting any use of vehicles outside working hours, only 8% in the Territory and 6% in the City and County indicated some work of emergency nature.

Table 26

TYPE OF WORK AUTOMOBILES USED FOR

TERRITORY OF HAWAII

Publicly-Owned:[a]		Privately-Reimbursed:[b]	
1. Inspection	32%	1. Admin./Sup.; Mess.	37%
2. Welfare	22%	2. Welfare	35%
3. Construction	19%	3. Auditing	16%
4. Admin./Sup.; Mess.	17%	4. Inspection	9%
5. Auditing	8%	5. Construction	2%
6. Patrol	2%	6. Patrol	1%
	100%		100%

CITY AND COUNTY OF HONOLULU

Publicly-Owned:[c]		Privately-Reimbursed:[d]	
1. Construction	50%	1. Patrol	67%
2. Admin./Sup.; Mess.	25%	2. Construction	10%
3. Patrol	12%	3. Admin./Sup.; Mess.	9%
4. Auditing	5%	4. Auditing	6%
5. Inspection	4%	5. Welfare	6%
6. Welfare	4%	6. Inspection	2%
	100%		100%

% Response:

[a] 92% - 270 out of 294 vehicles on Oahu.
[b] 100% - 294 vehicles on Oahu (plus scattering on Outer Islands).
[c] 96% - 180 out of 188 vehicles.
[d] 98% - 373 out of 379 vehicles.

D. MILEAGE, ASSIGNMENT, AND TYPE OF WORK

Those vehicles, both publicly-owned and privately-reimbursed, which are in continuous use, may be expected to maintain the highest monthly mileage. It was found in both jurisdictions that vehicles used for patrol or regular inspections are the highest mileage vehicles used on government business. Generally, if these vehicles belong to the government, they are assigned to employees individually--these employees spend most of their time in the field.

On the other hand, those employees required to make field checks where long periods of stoppage in the field are required, such as auditors, welfare workers,

workers and engineers on construction projects, etc., demonstrate relatively low mileage. The type of work where several employees go to the same field area at approximately the same time can more easily be accommodated by pools than many others. For example, although welfare workers are low mileage employees, their field schedule varies greatly and it would be difficult to accommodate them in pools unless daily use were staggered throughout the week. Since these low mileage uses tend to be assigned to pools at the present time, this effects the general pattern of low mileage of pooled vehicles. An attempt to re-evaluate the scheduling of these vehicles with the idea of increasing mileage of government vehicles, changing employees to private reimbursement, or assigning low mileage work to superannuated vehicles apparently could result in a substantial savings in total automobile costs.

Except for police, as far as could be determined, private cars are used to fill-in the lack of governmental cars rather than being authorized for definite uses, and authorization of private car use generally reflects no particular application of mileage pattern formulas.

VI.

Parking Practices

Data was gathered on the parking facilities provided for both public and private vehicles during the day and night. A sufficient response was not received to the questions about home parking facilities of private vehicles at night to justify comparisons of the facilities given government cars taken home at night with private car parking at night.

A. DAY PARKING) Most government cars are parked in the open during the day. However, specific open areas are reserved for most government automobiles. Some 38% of Territorial and 25% of City and County government vehicles are provided garages or sheds for day parking.

On the other hand, although most private cars used in governmental work parked in the open during the day, at the time the survey was made, it was found little parking area is definitely reserved for them. Ten per cent of government employees are provided sheds or garages for private automobiles at government expense during the day.

Table 27

FACILITIES FOR DAY PARKING

Type of Parking Area	Publicly-Owned				Privately-Reimbursed			
	TH (Oahu)		C&C		TH (Oahu)		C&C	
Open[a]	143	53%	103	60%	363	90%	350	97%
Shed[b]	83	31%	9	5%	38	9%	9	3%
Garage[c]	20	7%	35	20%	3	1%	-	-
Work from home	12	4%	-	-	-	-	-	-
Assigned parking area--type not indicated	7	3%	6	3%	-	-	-	-
Assigned parking area--comb. open and shed	5	2%	20	12%	-	-	-	-
	270	100%	173	100%	404	100%	359	100%
Total vehicles and % Response:	(294)	92%	(188)	92%	(481)	84%	(379)	95%

[a] "Open" indicates parking area with no structure for protection of vehicle.

[b] "Shed" means an open-sided structure which partially shields car, but would not prevent it from getting wet in a storm.

[c] "Garage" means a roofed structure which completely protects car from elements.

B. NIGHT PARKING OF GOVERNMENT AUTOMOBILES — According to Section 464.01 of the Revised Laws of Hawaii 1945, government vehicles are normally to be kept at or in the vicinity of the governmental agency controlling them, unless "being used for official or governmental business or purposes. . . .".

Sixteen Territorial automobiles on Oahu and 31 City and County vehicles are assigned on the basis of 24-hour use. These cars, plus 26 Territorial and 71 City and County automobiles are taken home at night. Also, 12 Territorial employees work from home and are assigned government vehicles. Therefore, a total of 54 Territorial vehicles are taken home at night on Oahu, or 21% of all cars reporting; 102 City and County cars are taken home at night, or 57% of those reporting.

Table 28

PERCENTAGE OF GOVERNMENT CARS TAKEN HOME AT NIGHT

Of Those Responding:	Territory of Hawaii (Oahu)	City and County
Number taken home	54 (21%)	102 (57%)
Number work from home	-12	
Adjusted number taken home	42 (16%)	
Number government cars assigned because on 24-hour call	-16	-31
Number cars taken home other than emergency or work from home	26	71
% of those reporting	10%	40%
Total number reporting	269	179
Total number vehicles	294	188
Total per cent response	91%	95%

Parking facilities of government automobiles taken home at night. Of the 21% of those Territorial cars reported taken home at night, one-third did not

indicate the type of shelter provided. Most Territorial cars taken home at night for which information is available reported that some type of shelter was provided; only 7% said that government cars taken home at night were left in the open. About one-third of the cars are placed in sheds and one-third indicated garages were provided.

Of those 102 City and County cars taken home at night, 42% did not indicate the type of shelter provided. Forty-seven per cent indicated that garages or sheds were provided and 11% indicated that government cars are left in the open at night. This pattern is roughly similar to the Territorial pattern.

Table 29

TYPE OF SHELTER PROVIDED GOVERNMENT CARS TAKEN HOME BY EMPLOYEES AT NIGHT

	Territory of Hawaii		City and County	
Open area	4	7%	11	11%
Shed	17	31%	2	2%
Garage	16	31%	46	45%
Not indicated	17	31%	43	42%
	54	100%	102	100%

Parking facilities of government automobiles kept at place of work at night or outside working hours. From the 269 reporting, 79% of the Territory's automobiles on Oahu are left at work at night. Almost half of these vehicles left at work remain in the open, shelter being provided for only 56% of the remaining vehicles.

Forty-three per cent of the 179 reponses in the City and County indicated that vehicles were left on working premises at night. Only 16% of these vehicles are left in the open and shelter is provided for 81% of the automobiles left at work.

Table 30

GOVERNMENT FACILITIES
FOR CARS AT NIGHT

	Territory of Hawaii	City and County
Open area	42%	16%
Shed	41%	12%
Garage	14%	45%
Open and shed combination	1%	24%
Not indicated	2%	3%
	100%	100%

The City and County practice has been to allow cars home at night if adequate facilities are not available on public grounds. The Territory has not followed this practice and the large percentage of cars left at work and kept in the open reflects the Territorial policy of keeping as many government cars as possible on government property outside working hours. Consequently, of those kept at work after regular hours, fewer City and County cars are left in the open.

There is great similarity in the number of vehicles provided government sheds or garages during the day and night. This means that almost full use (as many cars given day as night parking space) is being made of the present garaging facilities in these two jurisdictions.

Table 31

COMPARISON OF GOVERNMENT PARKING FACILITIES
DURING DAY AND OUTSIDE WORKING HOURS

	Territory of Hawaii		City and County	
	Day	Night	Day	Night
Shed	83	89	9	9
Garage	20	31	35	35
Combination	5	2	20	19
Total	108	122	64	63
Total reporting*	270	269	173	179

*All others in open or not indicated.

There should be at least 41 extra garages or sheds available for Territorial automobiles during the night which are occupied by private employee's cars during the day. Nine City and County employees are provided government shelter during the day. However, only 14 more employees are housed in garages and sheds at night in the Territory and 1 less garage and shed is used at night by City and County automobiles than during the day.

Classification and parking practices. The median classification of employees allowed to take cars home at night is higher than both the median classification of all employees using government automobiles and the median classification of those leaving cars at work at night. This indicates it is likely that cars are taken home by employees in higher classificationseither because of the nature of the work or as a perquisite of employment. The median classification of those Territorial employees taking government cars home at night is GS-6 and of those leaving at work is GS-5. In the City and County, GS-9 is the median classification of these employees taking government cars home at night and GS-6 is the median classification of those who do not.

Assignment and parking practices. Individually assigned automobiles are taken home at night much more often than pooled vehicles. In the Territory, 83% of the individually assigned government automobiles on Oahu are allowed home at night whereas only 7% of the pooled vehicles are taken home. Sixty-two per cent of the individually assigned City and County vehicles are taken home at night in contrast with 43% of the pooled vehicles similarly taken home.

Type of work and parking practices. There seems to be no particular type of work which allows employees to take government cars home at night. For example, while most Territorial automobiles used by employees engaged in construction and maintenance remain on government premises at night, two-thirds of those

engaged in this type of work in the City and County take government cars home at night.

Most employees on 24-hour call take cars home at night whereas most employees engaged in patrol leave government cars at work at night.

The following table compares the type of work government cars are used for and where they are parked at night in two ways: 1) by showing for all cars going home or staying on government premises after working hours the type of work for which they are used and 2) for each type of work, the percentage of all cars that stay on government premises at night or are taken home. In this way it is possible to analyze both the type of work in terms of night parking of all cars and night parking of all cars performing a particular type of work.

It is interesting in this way to note that while Territorial vehicles on 24-hour call compose only 28% of those vehicles taken home at night, these are 94% of all Territorial vehicles assigned on a 24-hour basis. This same ratio is found in the City and County for cars on 24-hour call. Also, whereas City and County used for auditing are only 5% of all the vehicles taken home, this 5% includes 56% of all vehicles used for this function.

Table 32

TYPE OF WORK AND NIGHT PARKING OF GOVERNMENT CARS

	% of all cars taken home at night	% of all cars left at work at night	% of all cars used for this work taken home at night +	% of all cars used for this work left at work at night*	Total
Territory of Hawaii					
Inspection	44%	29%	29% +	71%	= 100%
24-hour call	28	[illegible]	94 +	6	= 100
Admin./Sup.; Mess.	11	19	13 +	87	= 100
Welfare	11	23	11 +	89	= 100
Const./Maint.	6	22	6 +	94	= 100
Auditing		6		100	= 100
Patrol		[illegible]		100	= 100
	100%	100%			
City and County of Honolulu					
Const./Maint.	44%	36%	62% +	38%	= 100%
24-hour call	29	3	94 +	6	= 100
Admin./Sup.; Mess.	16	21	50 +	50	= 100
Welfare	6	1	86 +	14	= 100
Auditing	5	5	56 +	44	= 100
Patrol		26		100	= 100
Inspection		8		100	= 100
	100%	100%			

*100% is all cars engaged in this type of work in the jurisdiction.

% Response: 100%

VII.

Patterns of Monthly, Weekly, and Daily Use

Trip tickets were distributed in May, 1954, for almost all vehicles in both jurisdictions for which general questionnaires were submitted. All Territorial public vehicles and privately-reimbursed employees on Oahu were included as well as all City and County publicly-owned and privately-reimbursed vehicles except for the Police and Fire Departments. The purpose of the trip tickets was to determine the patterns of use of vehicles in order to better understand and be able to predict intensity of usage at various times during the month.

An excellent return was received on the trip tickets and as discussed in the Methodological Appendix, May can be considered quite representative of governmental travel during 1953.[29]

A. USE DURING REGULAR HOURS

Monthly Use: differences in the use of public and private as well as Territorial and City and County vehicles during the entire month, each day, and during the week are significant. During the month of May, the highest number of Territorial publicly-owned vehicles on Oahu out at any one time was 178; the lowest was 46. This range of number of cars out indicates the minimum and maximum needs of the Territory at any one hour. This same range has been determined for the City and County and for privately-reimbursed vehicles:

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[29]See Methodological Appendix, p. 65, for full discussion of validity of survey response.

Table 33

MONTHLY PATTERN OF USAGE DURING WORK DAYS
(number of cars out at one hour)

	HIGHEST NO. OUT	LOWEST NO. OUT
Government		
Territory of Hawaii (Oahu)	178	46
City and County	172	37
Private		
Territory of Hawaii (Oahu)	150	7
City and County	86	13

	HIGHEST AVERAGE NO. OUT	LOWEST AVERAGE NO. OUT
Government		
Territory of Hawaii (Oahu)	167	54
City and County	107	43
Private		
Territory of Hawaii (Oahu)	103	10
City and County	50	19

Source: Table 34, p. 54.

There is a great range in the number of cars out at any one hour. In no case were more than 75% of the governmental cars surveyed out on official business at at any one hour. The amount of privately-reimbursed cars out varies more from hour to hour than does publicly-owned vehicle use.

The Territory of Hawaii has more cars out on the average at all times than does the City and County. Usually the number of private cars reimbursed by the Territory which are out equals the City and County publicly-owned vehicles out. (City and County figures here do not include the Police and Fire Departments.)

There is of course a difference between the hours that the highest number of cars are out and the hours on which highest average number of cars are out. Although specific afternoon hours may require the use of an unusually large number of vehicles, generally the most intensive average use of vehicles is between 10-11 in the morning. Cars are used least between 7-8 in the morning and 4-5 in the afternoon.

The following table shows the average number of cars out during the month of May, 1954, by hour and day:

Table 34

AVERAGE NUMBER OF CARS OUT EACH HOUR
(regular work days, only)

	Monday	Tuesday	Wednesday	Thursday	Friday
	Territory of Hawaii Government Cars on Oahu				
Morning					
7-8	61	54	58	57	56
8-9	124	128	129	122	125
9-10	151	157	159	150	159
10-11	156	167	164	167	167
11-12	143	149	144	150	155
Afternoon					
12-1	105	113	107	114	101
1-2	145	153	156	159	143
2-3	161	163	158	165	143
3-4	134	140	136	135	131
4-5	71	67	71	66	69
	City and County Government Cars				
Morning					
7-8	63	60	61	59	58
8-9	90	86	88	87	88
9-10	96	91	92	92	90
10-11	97	96	93	96	94
11-12	88	85	84	84	83
Afternoon					
12-1	43	48	47	44	44
1-2	89	95	92	87	89
2-3	92	89	90	95	90
3-4	107	90	85	84	85
4-5	44	47	45	43	45
	Territory of Hawaii Private Cars on Oahu				
Morning					
7-8	13	13	14	11	10
8-9	41	46	45	44	45
9-10	78	74	78	75	75
10-11	91	90	94	92	93
11-12	75	70	78	79	69
Afternoon					
12-1	77	52	52	61	52
1-2	85	86	87	90	81
2-3	90	90	84	93	79
3-4	103	81	75	79	73
4-5	45	47	47	48	41
	City and County Private Cars				
Morning					
7-8	22	22	23	24	22
8-9	37	36	35	36	38
9-10	45	44	45	43	45
10-11	49	50	50	50	50
11-12	43	43	46	46	42
Afternoon					
12-1	26	28	30	29	31
1-2	41	41	44	45	44
2-3	41	42	44	46	43
3-4	50	38	42	42	41
4-5	21	22	20	19	20

Underlined: Highest for that hour during the work week.

Weekly Use: the pattern of use throughout the work week shows only a slight difference in intensity of use on different days. There is a generally regular

pattern of continuous use throughout the week, although there is slightly more use of automobiles in the middle of the week than on Mondays and Fridays.

The following table gives an index of use[30] throughout an average work week:

Table 35

INDEX OF AVERAGE PER CENT OF CARS OUT ON ONE PARTICULAR DAY COMPARED TO HIGHEST NUMBER OF CARS OUT DURING WEEK

	Monday	Tuesday	Wednesday	Thursday	Friday
Government Cars:					
Territory of Hawaii	.95	.97	.97	.97	.95
City and County	.98	.96	.95	.94	.93
Private Cars:					
Territory of Hawaii	.96	.91	.92	.93	.85
City and County	.94	.93	.96	.96	.95

Source: Table 34, p.54.

Pattern of Daily Use: (a) Comparison of Use in the Morning and Afternoon. In general, government automobile usage is slightly more intensive in the morning than in the afternoon. One per cent more Territorial and 4% more City and County public vehicles are out in the morning than in the afternoon; private usage is even more intensive in the morning hours. About 7% more City and County and 5% Territorial privately-reimbursed employees are out in the morning than in the afternoon.

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[30]Based on Table 34, p. 54. Calculated in the following manner: Step 1) used the highest number of cars out for that hour during that day of the week as base of 100% (underlined in table); Step 2) found percentage (index) that each day of that hour was to the base in step 1 (highest number cars reported out); Step 3) calculated average of all these percentages of each day in step 2 above--to give index of that day; Step 4) 100% would be that one day of each week on which highest number of cars was out during entire month

(b) Patterns of Hourly Use During Workdays: On the average, more cars are out between the hours of 10-11 than at any other single hour during the day. There is a general daily pattern of use between 7 a.m. and 5 p.m. that is similar in both jurisdictions for both publicly-owned and privately-reimbursed vehicles. Morning use is low rising to a peak between 10-11 and then falling sharply to the lowest point between 12-1. Afternoon usage again rises until a peak between 1-2 or 2-3 and falls sharply until 5 p.m. (Usage before 7 a.m. and after 5 p.m. will be discussed in the following section.)

The following table shows the average number of cars out during each hour of the working day calculated from the trip tickets distributed in May:

Table 36

PATTERNS OF DAILY USE--AVERAGE NUMBER OF CARS OUT DURING EACH HOUR OF WORKING DAY

	MORNING					AFTERNOON				
	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5
Government Cars:										
Territory of Hawaii	57	126	155	164	148	108	151	158	135	69
City and County	60	87	92	95	85	45	90	91	90	45
Private Cars:										
Territory of Hawaii	12	55	76	92	74	59	86	87	82	46
City and County	23	36	44	50	44	27	71	43	43	20

Underlined: Highest average number out during one hour.

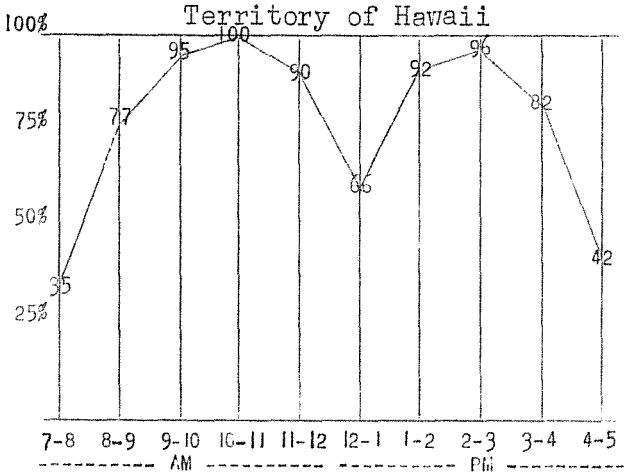
There are several differences that can be noted. Both the Territory of Hawaii and the City and County of Honolulu have more intensive and continuous use of government vehicles in the morning than in the afternoon. In addition, City and County government vehicles tend to be used much more in the earlier hours of the morning. The constant use of City and County government vehicles from 8-11 in the morning and 1-3 in the afternoon is also significant.

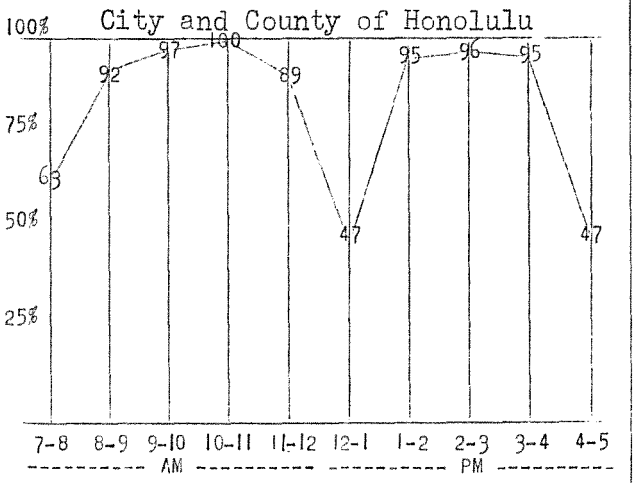
Reimbursed private usage displays a generally similar pattern. Although not as many private cars are in use at any one hour, there are peaks of use at 10-11 a.m. and 1-3 p.m. Early morning usage is less general for privately-reimbursed vehicles than for publicly-owned vehicles. It is interesting to note that the highest percentage of City and County privately-reimbursed vehicles out at one hour is in the afternoon--a variation from other vehicles.

Chart 7

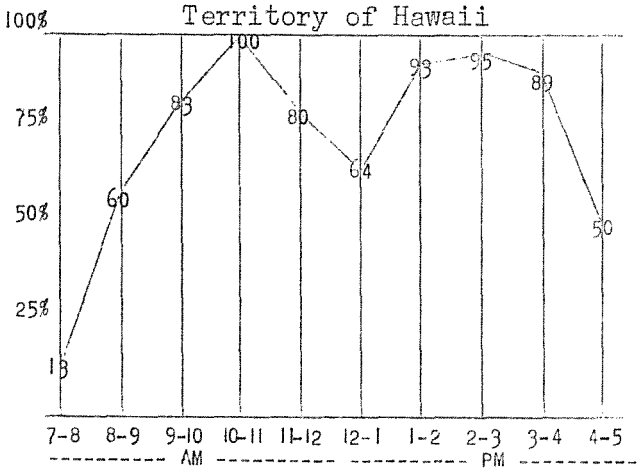
DAILY PATTERN OF AUTOMOBILE USAGE ON GOVERNMENT BUSINESS*

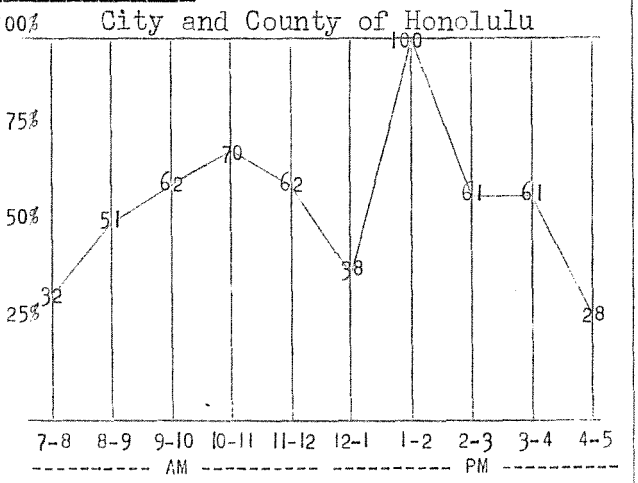
GOVERNMENT CARS





PRIVATELY-REIMBURSED CARS





*Based on average monthly use during May 1954, Table 34, p. 54. 100% taken as highest average hour during month and scores converted as compared to 100%.

B. OUTSIDE) HOURS USE) Automobile usage between 5-12 midnight compared with that from midnight to 7 a.m. in the morning shows that there is slightly more automobile usage on government business between 5-midnight. Government automobiles are used more during outside hours between 12 midnight-7 a.m. than are privately-reimbursed vehicles. Privately-reimbursed cars are used more between 5-12 p.m. than between 12-7 in the morning.

Table 37

TOTAL NUMBER TRIPS OUTSIDE REGULAR WORKING HOURS DURING MAY, 1954

	Government Cars		Private Cars	
	Territory of Hawaii	City and County	Territory of Hawaii	City and County
12- 7 a.m.	579	385	93	5
5-12 p.m.	399	218	363	130

Saturday, Sunday, and Holiday Use: Little use of automobiles on government business was reported for Saturdays, Sundays, and the two holidays in May 1954.[31] Sundays tended to be the day when the least governmental use was reported made of of cars.

Table 38

CARS IN USE-SATURDAYS, SUNDAYS, AND HOLIDAYS
(no. out at any one hour)

	TH Govt.	C&C Govt.	TH Private	C&C Private
AVERAGE				
Saturdays	22	16	7	10
Sundays	15	4	3	4
Holidays	18	14	8	8
LOWEST				
Saturdays	6	6	1	3
Sundays	2	1	0	1
Holidays	1	1	0	1
HIGHEST				
Saturdays	62	59	22	21
Sundays	26	14	9	11
Holidays	36	26	25	20

[31] May 1 - May Day; May 31 - Memorial Day.

Type of Work Requiring Automobile Transportation Outside Regular Hours:

For both publicly-owned and privately-reimbursed vehicles in both jurisdictions, the type[32] of work that is most often performed outside regular hours is administrative/supervisory; messenger work. This is probably due to attending meetings as a representative of a government agency, driving to or from the airport, etc. Field inspections require frequent use of territorial cars at irregular hours throughout the week; irregular use for construction/maintenance purposes is similarly reported for county cars. Many City and County employees use their private cars outside regular hours for recreation or welfare uses. In general, however, the type of work performed outside hours corresponds to that during the regular work day.

Table 39

TYPE OF WORK REPORTED FOR AUTOMOBILES USED OUTSIDE REGULAR HOURS

1.	Admin./Sup.; Mess.	39%
2.	Construction/Maintenance	19%
3.	Welfare	14%
4.	Inspections	12%
5.	Auditing	6%
6.	Emergency	6%
7.	Patrol	4%
		100%*

*Per cent of those using vehicles outside regular working hours turning in trip tickets.

% Response: TH Govt. 96%; C&C Govt. 100%; TH Private 99%; C&C Private 100%.

There was relatively little use of vehicles outside regular hours reported in May, 1954, and that spread among many of the vehicles. About 1/3 of all government vehicles and 1/4 of all privately-reimbursed vehicles turning in trip tickets

[32]Classification of work for which vehicles are used on government business explained on p. 41 and 42.

showed use outside regular hours only once during the month and only about 1/4 of the government vehicles and 1/6 of the privately-reimbursed vehicles indicated such use more than once during May of 1954.

The following table shows the percentage of trip tickets showing any outside hours use during May, 1954:

Table 40

PERCENTAGE OF ALL VEHICLES REPORTING USE OUTSIDE REGULAR HOURS DURING MAY, 1954

	TH Govt.	C&C Govt.	TH Private	C&C Private
Only 1 use	35%	34%	29%	24%
More than 1 use	30	25	16	17
No use	35	41	55	59
	100%	100%	100%	100%
No. of Cars Reporting:	263	141	375	93

Methodological Appendix

GATHERING DATA

Two forms were used in the survey. The first, a general questionnaire seeking specific information about vehicles--such as gasoline consumption, repairs, monthly cost, use, etc.--was sent to all agencies having automobiles or reimbursing employees for the use of their vehicles. Enough forms were given to each agency to permit one questionnaire to be turned in for every vehicle actually used during the year 1953. The second form, a trip ticket, was distributed for each vehicle in order to record its use during the month of May, 1954.

a. General Questionnaires: Two types of these general questionnaires were utilized--i) GOVERNMENTAL AUTOMOBILE RECORD and ii) PRIVATELY-OWNED CAR RECORD.[1] Specific, itemized cost data were asked for public vehicles, but only the cost to the government and the method of reimbursement was obtained in the case of most private vehicles.

(1) Planning: The problems of designing the questionnaire were formidable. After gathering examples of all automobile records kept by each agency in the Territory and the City and County, it became apparent there were no standard forms. Appropriations, purchasing, and maintenance were all recorded differently. Some agencies from which data were requested were found not to be keeping any central records.[2] Therefore, the questions asked had to be specific enough to fit all the agencies but not require information which the agency did not have or would find difficult to obtain.

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[1] At the back of this Methodological Appendix, pp. 67 and 68.

[2] One territorial agency had no cost or use records of governmental vehicles for the year 1953 but detailed accounts for the year 1952. As the use of cars in both years was reported as typical, 1952 costs for use and 1952 mileage were included for 43 cars.

(2) Format of the questionnaire: The questionnaires were divided into two parts. The first was filled out by the agency responsible for a government car or reimbursing an employee for the use of his vehicle, and the second part (beneath the double line on the questionnaire form) contained questions concerning administrative matters, answers to which were obtained by personal interview by the survey staff. These were placed on a single page in order to keep together all data on the same vehicle. (Subsequently, the information on this form was coded directly onto the same page.)

This proved to be an excellent psychological device because some resentment to completing the questionnaire was overcome during the initial interview by pointing out that the agency was only required to fill out one-half of the form.

b. Trip Tickets: The second type of form used in the survey was a trip ticket distributed for vehicles on Oahu during the month of May, 1954. The trip tickets were designed to record the hours that each vehicle was used each day. The trip ticket also asked for speedometer readings on the 1st, 17th, and 31st of the month. Record of the length of time out was kept in the following manner:

CAR RECORD[3]

A. Date 1954	B. Official Miles Travelled	C. Time Car Actually Used		D. Purpose of Any Use Outside of Normal Working Hours	E. Maximum Number of Riders
		A.M.	P.M.		
Example: May 1	8.5	9:00-11:15	2:30-3:30 7:30-10:00	Attending Commission Meeting	2
May 2					

Column

B -- The amount of official miles travelled for which reimbursement is claimed or flat allowance is paid.

C -- The time car was in use on official business, for example "9:30 to 11:30" or "1:45 to 2:15," in the appropriate a.m. or p.m. column. (Do not include time car parked outside your office.)

D -- The purpose of any use outside of normal working hours, for example, "emergency call to check broken main," or "attending PTA meeting." Unless advised to the contrary, the hours from 7:30 a.m. to 5:00 p.m., Monday through Friday, and 7:30 a.m. to 12:00 noon on Saturday will be considered normal working hours and all other hours will be outside normal working hours.

E --For each day, the maximum number of official riders, other than the driver, who accompany the driver on any trip on governmental business during the course of the day.

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[3]Governmental Car Record (Trip Ticket) same, except item "B." omitted since all mileage of government vehicles paid for by the government so considered official miles.

Trip tickets were distributed twice during the month--from the 1st to the 16th and from the 17th to the 31st.

DISTRIBUTING FORMS — All forms were distributed by a member of the survey team directly to the officer of each department in charge of their completion. Questionnaires were accompanied by detailed written instructions. Every agency was urged to fill the questionnaires out from the records available rather than through consulting memories of employees. Trip tickets were completed personally by employees using cars in May, 1954.[4]

Through personal interview and telephone reminder, questionnaires are believed to have been obtained on practically all governmental cars and government-reimbursed private cars used in 1953.[5] Less cooperation was obtained in completing trip tickets--in general, it appeared cooperation was negatively correlated with elected status and level of position of the person using the car.

TABULATING DATA — Tabulation of the data passed through two stages. First, questionnaires and trip tickets were checked and coded by a team of University students under supervision of Bureau personnel. The second phase

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[4]Agencies were requested to supply information on all non-truck vehicles, and the Bureau subsequently eliminated those questionnaires and trip tickets not fitting the needs of the survey.

Eliminated questionnaires included:

	Government	Privately-Owned
Territory of Hawaii	18	7
City and County of Honolulu	2	1
	20	8

Of the 28 eliminated, 18 were not passenger vehicles (including 7 pick-up trucks, 2 weapons carriers, 1 1-ton stake, 1 1-ton canopy, 5 busses, 1 carryall, and 1 towing jeep); 2 were not used during 1953; 3 were traded in during 1953 but two questionnaires were submitted; and 5 had been transferred to another agency but two questionnaires were submitted.

Ten trip tickets were eliminated; 4 due to eliminated questionnaires; 4 which had been sold and not replaced; and 2 which had no data recorded on them.

[5]See Part I, The Scope of the Survey, p. 2, footnote 6, for comparison of number of cars included in the survey and total car registrations in Hawaii, 1953.

consisted of key punching and tabulating the data on IBM machines. To assure accuracy and consistency, some of the personnel were used in both phases.

One 80 column IBM card was punched for the 684 government vehicles surveyed, a 62 column card for the 1,173 privately owned vehicles, and an 80 column card for the 881 trip tickets turned in. Extensive cross correlations were possible because of this method of tabulation.

STATISTICAL CONSIDERATIONS

a. Percentage Response: The major problem encountered was that information from all cars was not available for each question. Therefore, the number of questionnaires included in computing the average of each differentiated cost varied. However, for total costs, only the questionnaires responding to the question were used. Thus, although a large percentage responded to most questions, the total figures represent a smaller proportion of the universe. In general, a high percentage response was obtained throughout the survey. The tables in the report indicate percentage response in all cases.

b. Trip Ticket Response: Trip tickets were distributed to all Territory of Hawaii vehicles on Oahu[6] and to all City and County vehicles except Police and Fire Departments.[7] The same differentiated distribution was employed for private cars reimbursed by these two jurisdictions. An average response of 95% was obtained on all trip tickets sent out.

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[6]Except 1 car of Budget Bureau, by mistake.

[7]A pilot run showed it to be too difficult to keep record of use in these departments because of the continuous emergency nature of work performed.

RESPONSE TO TRIP TICKETS

	Cars Government		Cars Private	
	TH	C&C	TH	C&C
No. cars surveyed, 1953	496	188	794	379
No. Trip Tickets distributed May, 1954	294	159	481	101
No. vehicles not used; no longer employed; on vacation, leave; etc., 1954	(-) 12	(-) 2	(-) 92	(-) 6
Total possible Trip Tickets	282	157	389	95
Total return on Trip Tickets	272	141	375	93
Percentage Response	96%	90%	96%	98%

The average monthly mileage obtained from the questionnaires for the year 1953 and the average monthly mileage reported by the trip tickets for May, 1954, are fairly close (on private vehicles, from 2 to 4%). The assumption that the month of May, 1954, can be considered representative of use during 1953 is therefor not unreasonable.

COMPARISON OF AVERAGE MONTHLY MILEAGE

	Trip Tickets	Questionnaires
Government Cars		
TH[a]	591	442
C&C[b]	863	779
Private Vehicles		
TH[a]	209	205
C&C[b]	438	422

[a]Figures include only Territorial vehicles on Oahu.
[b]Figures exclude Police and Fire Department vehicles.

COST OF SURVEY

It is difficult to compute the true cost of this survey. Some of the preliminary planning and distribution of questionnaires was done by University students as part of class work in a public administration course. Staff of the University's IBM office kindly donated long hours of overtime (uncompensated). Cost of supervision of the survey was not differentiated from oversight

exercised over all Bureau work being conducted at the same time. Cost data kept indicate that a unit cost of about 25¢ per IBM card was incurred for checking a questionnaire or trip ticket, coding, key punching, verifying, and tabulating. Total cost of this survey, excluding rental and depreciation of equipment, is estimated to be $5,000.

ADDITIONAL DATA — Beside the information collated in this report, additional, more detailed data have been obtained which are available upon request. Also, information summarized in this report for all Territorial and City and County services may be obtained for each governmental agency surveyed, and except for trip tickets, for every geographical area in the Territory within which cars are used. The key-punch cards on which the information is recorded will be maintained by the Bureau for such administrative use as governmental agencies desire to make of it.

Governmental Automobile Record

Please complete lines A through P

	Col.	Code*
	1	
A. (i) License No._____; (ii) Agency No._____; (iii) Card No._____	2-5	
	6,7	
B. Agency_____	8,9	
C. Make of car, year, & model_____	10	
D. Present age of car_____	11-14	
E. Purchase price of car_____/(monthly depreciation)	15-18	
F. Reported miles per month (1953÷12)_____	19,20	
	21-24	
G. Gasoline used per month (1953÷12): gallons_____; cost_____	25-28	
	29	
H. Oil used per month (1953÷12): quarts_____; cost_____	30-32	
I. Servicing cost per month (wash., lub., flats, etc.) (1953÷12)_____	33-36	
J. Replace. cost per month (bat., tires, plugs, etc.) (1953÷12)_____	37-40	
K. Repairs and parts, cost per month (1953÷12)_____	41-44	
L. Other costs (1953÷12) please specify:_____	45-48	
_____	49-52	
(M)	53-56	
M. Cost per month (G ↔ L)_____/(M+E)	57-60	
(M÷F)	61-64	
N. Cost per mile (M÷F)_____/(M+E÷F)	65-68	
O. Island and place where car normally located (as Maui, Wailuku)_____	69,70	
P. Person to contact to determine use of car (name and place)		
Q. Assignment_____	71	
R. No. using_____	72,73	
S. Status of those using_____	74,75	
T. Basis of individual assignment_____	76	
U. Administrative method for checking need_____		
V. Type of work car to be used for_____		
_____	77	
W. Type of work car used for_____		
_____		
X. Hours per week used_____		
Normal work hours_____		
Outside normal work hours_____		
Y. Average No. of riders per trip_____		
Maximum No. on any one trip_____	78	
Z. Preventive maintenance_____/confirmed		
AA. Parking		
Day_____/confirmed	79	
Night_____/confirmed	80	
Weekend_____/confirmed		

*CODE ADDED TO QUESTIONNAIRE AFTER ANALYSIS OF RETURNS SHOWED SOME ANSWERS SO GENERALLY INCOMPLETE AS TO INDICATE THEIR COMPLETE EXCLUSION FROM THE SURVEY.

Privately Owned Car Record

Please complete lines A through O

	Col.	Code
	1	
A. (i) License No._____; (ii) Agency No._____; (iii) Card No._____	2-5	
B. Agency_____	6,7	
	8,9	
C. Make of car, year, & model_____		
D. Total monthly mileage (1953÷12)_____	10-13	
E. Reported reimbursable miles per month (1953÷12)_____	14-17	
F. Basis of reimbursement_____	18,19	
Travel from home to work and return included?_____	20	
Travel from work to lunch and return included?_____	21	
G. Monthly cost to government (1953÷12)_____	22-25	
H. Cost to government per mile (G÷E)_____	26-29	
I. Perquisites for car in addition to reimbursement_____		
_____	30,31	
J. Estimated perquisite value per month_____	32-35	
K. Estimated cost to government of perquisites per month_____	36-39	
L. Full monthly cost to government (G+K)_____	40-43	
M. Full cost to government per mile (G+K÷E)_____	44-47	
N. Island and place where car normally located (as Maui, Wailuku)___		
_____	48,49	
O. Person to contact to determine use of car (name and place)		
_____		
P. Basis for authorizing official use_____	50,51	
Q. Status of person officially using own car_____	52,53	
R. Status of other persons officially using car, if any_____	54,55	
S. Admin. method for checking use_____		
T. Type of official work for which car to be used_____		
_____		
_____	56,57	
U. Type of official work for which car used_____		
_____		
V. Hours per week used, officially_____		
Normal work hours_____		
Outside normal work hours_____		
W. Average no. of riders per trip_____		
Maximum no. on any one trip_____	58	
X. Parking		
Day_____/confirmed	59	
Night_____/confirmed	60	
Weekend_____/confirmed	61,62	

_____

_____

_____