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September 25, 1998

TO: J/Associate Administrator for Management Systems and Facilities

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Report on NASA General-Purpose Vehicles Acquisition and Use
Assignment Number A-HA-97-068
Report Number IG-98-035

The subject final report is provided for your use. Please refer to the Executive Summary for the overall audit results. Your comments on a draft of this report were responsive to our recommendations. Our evaluation of your responses has been incorporated into the body of the report. We consider the recommendations closed for reporting purposes. However, we request that management provide us the actual savings achieved once action is completed.

If you have questions concerning the report, please contact Mr. Lorne A. Dear, Program Director for Procurement and International Agreements Audits, at (818) 354-3360, or Mr. Patrick A. Iler, Auditor-in-Charge, at (216) 433-5408. We appreciate the courtesies extended to the audit staff. See Appendix F for the report distribution.

[Original signed by]

Russell A. Rau

Enclosure

cc:

B/Chief Financial Officer

G/General Counsel

JM/Director, Management Assessment Division

GSFC/100/Director, Goddard Space Flight Center

KSC/CD/Director, Kennedy Space Center

LeRC/0100/Director, Lewis Research Center

MSFC/DA01/Director, Marshall Space Flight Center

IG-98-035

**AUDIT
REPORT**

**NASA GENERAL-PURPOSE VEHICLES
ACQUISITION AND USE**

SEPTEMBER 25, 1998



National Aeronautics and
Space Administration

OFFICE OF INSPECTOR GENERAL

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ACRONYMS

CFR	Code of Federal Regulations
COBRA	Consolidated Omnibus Budget Reconciliation Act of 1985
DOE	Department of Energy
FY	Fiscal Year
GSA	General Services Administration
GSFC	Goddard Space Flight Center
IFMS	Interagency Fleet Management System
KSC	John F. Kennedy Space Center
LeRC	Lewis Research Center
MSFC	George C. Marshall Space Flight Center
OIG	Office of Inspector General

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NASA GENERAL-PURPOSE VEHICLES ACQUISITION AND USE

EXECUTIVE SUMMARY

BACKGROUND

NASA Centers maintain fleets of general-purpose vehicles to meet NASA and basic contractor transportation needs. These fleets consist of both General Services Administration (GSA) leased and NASA-owned vehicles. Congress has passed several laws to ensure the proper management and use of Government vehicle fleets.

OBJECTIVES

The overall objective of the audit was to evaluate the effectiveness of NASA's Government vehicle program. Specifically, we determined whether:

- the four NASA Centers we reviewed appropriately sized their vehicle fleets to meet Agency needs;
- NASA Centers procured and maintained vehicles for the Agency in the most economical manner; and
- alternative means were available to meet mission requirements.

We conducted our audit at Goddard Space Flight Center (GSFC), John F. Kennedy Space Center (KSC), Lewis Research Center (LeRC), and George C. Marshall Space Flight Center (MSFC). Additional information on the objectives, scope, and methodology is in Appendix A.

RESULTS OF AUDIT

Center vehicle fleet managers were customer oriented and generally very effective in meeting the staff's vehicle needs. Results from our vehicle user questionnaire showed that users were generally satisfied with both the quality of the equipment and the service provided (see Appendix B). All four Centers, however, had excess vehicles. Further, two Centers continue to purchase and maintain vehicles, rather than lease vehicles through GSA. NASA can save from about \$900,000 to \$1.7 million annually by disposing of underutilized vehicles. The Agency may also be able to save from \$390,000 to \$1.9 million annually by converting owned vehicles to GSA leases.

During the audit, we issued a report to MSFC and a management letter to GSFC. The report¹ discussed the need for management at MSFC to reduce the number of contractor vehicle maintenance staff. Management subsequently eliminated four contractor maintenance positions, which resulted in an estimated annual savings of \$163,000. The letter² discussed reducing GSFC contract costs by eliminating contractor tracking and reporting of the use of 16 commercially leased vehicles. Management subsequently agreed to delete the vehicle reporting requirement from the contract and to discontinue reporting these vehicles in the annual Agency Report of Motor Vehicle Data.

RECOMMENDATIONS

NASA Centers should reduce costs by identifying and eliminating underutilized general-purpose vehicles and acquire and maintain vehicles in the most economical manner.

***MANAGEMENT'S
RESPONSE***

Management concurred with all recommendations and will take actions to eliminate underutilized vehicles and convert to leasing when beneficial to NASA. We consider planned actions responsive to the intent of the recommendations.

¹ Rapid Action Report No. IG-97-036, "MSFC Vehicle Fleet Conversion: Additional Savings Possible," September 9, 1997.

² Management Letter No. M-IG-97-013, "Observations Regarding Reporting of Vehicle Utilization Data for Commercial Leases," September 30, 1997.

INTRODUCTION

BACKGROUND

NASA needs a variety of general-purpose and specialty vehicles to implement programs and accomplish research missions. To fulfill these needs, NASA Centers have traditionally maintained a fleet of vehicles for use by staff and contractor personnel. The general-purpose vehicles usually consist of late-model passenger cars, small trucks, vans, and tractors.

The Centers either buy these vehicles or lease them. While the majority of NASA vehicles are leased, some Centers continue to rely on NASA-owned vehicle fleets (see Table 1). NASA's fiscal year (FY) 1997 budget for motor vehicle operations was \$9.2 million.

**Table 1. NASA Center Vehicle Statistics
(as of beginning FY 1997)**

Center	Owned Vehicles		Leased Vehicles		Total Number of Vehicles
	Number	Percent	Number	Percent	
Ames	114	67%	56	33%	170
Dryden	38	34%	74	66%	112
Goddard	240	93%	19	7%	259
JPL*	10	3%	287	97%	297
Johnson	0	0%	286	100%	286
Kennedy	0	0%	1,449	100%	1,449
Langley	71	100%	0	0%	71
Lewis	149	85%	26	15%	175
Marshall	333	100%	0	0%	333
Stennis	6	2%	245	98%	251
Total	961	28%	2,442	72%	3,403

* Jet Propulsion Laboratory

During FY 1997, MSFC converted from NASA-owned to GSA-leased vehicles.

Transportation officers at each Center are responsible for managing and operating the vehicle fleets and for complying with Federal laws and regulations that govern fleet operations. While each Center operates its own fleet, NASA's Office of Management Systems and Facilities provides oversight through its Security, Logistics, Aircraft and Industrial Relations Division. The Transportation Manager in that division oversees the motor vehicle program to ensure optimal support to NASA missions and efficient use and effective stewardship of the Government assets.

NASA Policy Directive 6000.1, "Transportation Management," provides general guidance to ensure that only essential transportation services and equipment are acquired and that all applicable Federal laws and regulations are followed. Some NASA Centers have local instructions or directives that supplement the Agency guidance.

FINDINGS AND RECOMMENDATIONS

CENTER VEHICLE FLEET SIZE

All four Centers reviewed had excess and underutilized vehicles. Controls over the process to justify vehicle retention were not followed, were not consistent between Centers, and did not directly correlate miles driven to the need for vehicles. NASA can achieve annual savings ranging from about \$900,000 to \$1.7 million by disposing of excess vehicles at the four Centers.

Suggested Minimum Use Criteria

Both Federal regulations and Center guidance provide criteria for determining the need for vehicles. While other factors can be considered, the minimum use criteria is an objective measure that indicates whether vehicles are being fully utilized.

Federal Property Management Regulations (Title 41, Code of Federal Regulations (CFR), Chapter 101, July 1, 1996) contain GSA's utilization guidelines for justifying vehicle need. To justify a full-time vehicle assignment, GSA guidance recommends that vehicles be driven a minimum of 7,500 to 12,000 miles per year depending on the type of vehicle. GSA guidance also states that other utilization factors such as days used and agency mission can be considered when determining the need for a vehicle.

All four NASA Centers considered factors such as unique mission requirements, purpose, and potential effect on programs in determining the number of vehicles needed. Two Centers, however, also had objective mileage guidelines. LeRC set its guideline at 275 miles per month. KSC does not have a Center-wide guideline, but two major contractors at KSC set a 400 miles per month guideline. For analysis purposes, we compared vehicle usage at GSFC and MSFC to the LeRC guideline.

Comparison to Suggested Minimum Use Guidelines

During FY 1996, a high percentage of vehicles (as shown in Tables 2 and 3) at all four Centers did not meet GSA or Center established guidelines. Based on GSA guidelines, 24 to 67 percent of the vehicles would be considered excess.

Table 2. Comparison to GSA Use Criteria

Center	Number of Center Vehicles	Percent of Vehicles Excess Based on GSA Use Criteria *	Number of Vehicles Excess Based on GSA Use Criteria
GSFC	222	47%	104
KSC	1,449	24%	348
LeRC	175	67%	117
MSFC	333	57%	190
TOTAL	2,179		759

* We applied the minimum GSA guideline of 7,500 miles per vehicle per year.

Based on the Center guidelines, 12 to 47 percent of the vehicles would be considered excess, as shown in Table 3. In addition, LeRC had three vehicles that sat idle for 3 years. Further, 40 percent of the underutilized vehicles at MSFC showed periods of nonuse, ranging from 1 to 11 months.

Table 3. Comparison to Center Use Criteria

Center	Number of Center Vehicles	Percent of Vehicles Excess Based on Center Use Criteria *	Number of Vehicles Excess Based on Center Use Criteria
GSFC	222	24%	53
KSC	1,449	12%	174
LeRC	175	47%	82
MSFC	333	27%	90
TOTAL	2,179		399

* We applied the LeRC guideline of 275 miles per month to vehicles at GSFC, LeRC, and MSFC, and applied the KSC contractors' guideline of 400 miles per month to vehicles at KSC.

GSFC, KSC, and MSFC have reduced vehicle fleets. Based on Center management direction, GSFC reduced vehicles by 7 percent in 1995, KSC reduced vehicles by 3 percent in May 1995, and MSFC reduced vehicles by 12 percent in April 1997. Even with these reductions, Tables 2 and 3 show that a significant number of vehicles at all four Centers did not meet suggested minimum use guidelines. While low mileage is not the only factor

to be considered when determining that vehicles are excess, the high percentage of underutilized vehicles is a strong indicator that Centers have excess vehicles. The details of our analysis are shown in Appendix C.

Controls Over Process to Justify Vehicle Retention

Centers did not fully use the controls in place such as vehicle logs, vehicle justifications, and utilization reviews to ensure that the number of vehicles was limited to the minimum required to meet operational requirements.

Vehicle Use Records. The four Centers had logs, such as MSFC's Daily Vehicle Dispatch Log, to document actual use of general-purpose vehicles. However, Center management did not consistently use logs to evaluate the continuing need for vehicles.

MSFC instructions require personnel who monitor vehicle use to maintain a daily log for at least 6 months to provide backup information for the annual inventory and to justify the continued need for vehicles. While LeRC kept logs on the vehicles in its motor pool, LeRC did not require that the logs be maintained for permanently assigned vehicles. KSC, MSFC, and GSFC required logs for all vehicles; however, the logs were not consistently or adequately maintained and were not provided to transportation management. For example, MSFC logs had no dates or times, the purposes and user information was incomplete, and information for multiple vehicles was recorded on a single log, which hindered our analysis. Some logs at GSFC were not prepared, and others were prepared but were not provided to the GSFC motor pool for review.

Vehicle Justifications. Both MSFC and GSFC prepared written justifications for vehicle assignments. However, the justifications were rarely updated. For example, MSFC's written justifications for permanently assigned vehicles were at least 10 years old. Some vehicles were initially assigned to support projects that have been completed or transferred to another Center; nonetheless, the vehicle justifications were not amended. The vehicle justifications at GSFC were last updated in 1993.

Vehicle Utilization Reviews. KSC and MSFC established vehicle utilization review boards to periodically review Center organizations' needs for general-purpose vehicles. The boards decide whether organizations should retain permanently assigned

vehicles. However, KSC's board has not met in years and did not review logs because review was considered too time consuming. Rather, KSC's board let individual Center directorates and contractors determine the number of vehicles their organizations needed. MSFC's board met annually, but also did not examine usage and let individual Center directorates determine whether vehicles should be retained.

In FY 1998, LeRC established a vehicle utilization review board, which met in November 1997 to develop a plan to reduce the vehicle fleet. GSFC did not have a board.

NASA Can Achieve Savings

For the four Centers reviewed, NASA could put about \$900,000 to \$1.7 million to better use each year if the Centers retain only vehicles that meet the suggested minimum use guidelines. The Agency can achieve these benefits if 399 to 759 vehicles are eliminated from the fleet. See Appendix C for the detailed calculations of excess vehicles and cost savings.

RECOMMENDATION 1

The Associate Administrator for Management Systems and Facilities should establish policy for the approval of the Deputy Administrator that requires Centers to:

- a. Establish and use mileage criteria as one key factor for justifying vehicles.
- b. Use vehicle utilization review boards to assess current vehicle usage and requirements based on minimum use guidelines, vehicle logs, and updated vehicle justifications.
- c. Return to GSA or dispose of any vehicles that are determined to be excess.

Management's Response

Concur. The Associate Administrator for Management Systems and Facilities has functional responsibility for NASA general-purpose vehicles and plans to issue a policy letter by December 15, 1998, which will include actions to implement the recommendation. The policy will be incorporated in a future revision of NASA Policy Directive 6000.1, "Transportation Management." Management also concurred that savings would be realized from disposing of excess vehicles, but believed it was premature to estimate the anticipated dollar value at this time. The complete text of management's comments is in Appendix E.

***Evaluation of
Management's Response***

The planned action by the Associate Administrator is responsive to the recommendation. We deleted the reference to specific estimated savings in recommendation 1c and request that management provide us with the actual savings achieved once action is completed.

LEASE VERSUS PURCHASE

KSC and MSFC lease their vehicles through the GSA Interagency Fleet Management System (IFMS); however, GSFC and LeRC purchase, operate, and maintain NASA-owned vehicle fleets. Out-of-date cost comparisons and failure to fully recognize the intangible benefits of leasing have kept GSFC and LeRC from making the transition from owned to leased fleets. Leasing could reduce LeRC fleet costs from \$50,000 to \$250,000 annually. In addition, leasing would provide operational benefits at both GSFC and LeRC.

Federal Law and Regulations

Federal law and regulations guide Agency management of vehicle fleets. In 1986, Congress enacted the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272), or COBRA. Congress believed that significant savings could be achieved by finding more cost-efficient means to acquire, operate, maintain, and dispose of motor vehicles in Federal agencies. COBRA required the heads of Federal agencies to take actions to improve the management and efficiency of their fleets and to reduce the costs of their operations. Specifically, COBRA required each agency to identify, collect, and analyze all the costs of their motor vehicle operations. In addition, each agency was to conduct a comprehensive, detailed study to compare the costs and benefits of its motor vehicle operations with those of (1) GSA's IFMS, (2) private sector firms, or (3) any other means that could be less costly to the Federal Government. In addition, Office of Management and Budget Circular A-76, "Performance of Commercial Activities," March 1996, offers specific guidance on how to conduct cost comparisons of owning versus leasing vehicles.

Centers' Use of Leased and Purchased Vehicles Varies

While LeRC and GSFC lease some vehicles, these Centers purchase and maintain the majority of their general-purpose vehicles. Center officials believed that owning vehicles was more economical than leasing from GSA. Other NASA Centers, such as KSC and MSFC, and some other Federal agencies, such as the Department of Energy (DOE), however, have found leasing to be a more cost-effective way to provide vehicles.

KSC has met its vehicle needs by leasing through GSA, and MSFC converted from its Agency-owned fleet to a leased fleet in FY 1997. In August 1996, MSFC projected that converting to GSA-leased vehicles would result in annual savings of \$544,000. The

interagency agreement converting MSFC's vehicles from an Agency-owned to a GSA-leased fleet was effective December 1, 1996.

A 1993 joint DOE and GSA study found similar savings from converting to GSA leased vehicles. The joint study showed that annual savings of about \$534,000 would result from converting the Agency-owned, 833-vehicle fleet at the Lawrence Livermore National Laboratory to GSA-leased vehicles.

***Cost Comparisons and
Other Benefits of Leasing***

LeRC and GSFC COBRA studies that concluded owning vehicles was more cost-effective than leasing from GSA had been prepared several years ago and need updating. In addition, the studies did not fully take into account the intangible benefits of leasing such as newer model leased vehicles and the greater flexibility in changing fleet size and mix. LeRC last updated its COBRA study in 1991. GSFC originally prepared its COBRA study in 1990 and performed a vehicle engineering study in 1994 that revalidated GSFC's COBRA study findings. However, GSFC was unable to provide us detailed documentation of the 1994 vehicle engineering study. Therefore, we could not analyze the study's methodology.

Although they are not readily quantifiable, intangible factors also benefit agencies that lease vehicles from GSA. The joint DOE and GSA study identified the following intangible factors.

- Leasing enables agencies to lower the age of their vehicle fleets, resulting in more dependable service and less downtime. Due to GSA's vehicle replacement policy, the average age of the IFMS fleet is 3.5 years.

Because of the increasing difficulty in obtaining funds to purchase new vehicles, the average age of vehicles at Centers that own vehicle fleets is higher – about 6.7 and 7.7 years at GSFC and LeRC, respectively. The average age of MSFC's vehicle fleet before the Center converted to leasing was more than 10 years. GSA achieves a substantial advantage in the average age of its fleet because its funding system builds the cost of replacing vehicles into the monthly lease rates. Therefore, vehicles can be replaced as necessary, not as funding becomes available.

- Capital funding required for new vehicle acquisitions can be redirected to other requirements. Similarly, personnel can be made available for other program needs.
- GSA's Fleet Management Center network is able to provide greater flexibility and reduced response time when an agency's vehicle requirements change. Assigned vehicles can be increased or reduced, and the vehicle mix can be changed to meet agency needs.
- GSA's vehicle rental rates include all operational costs, thus providing predictable data for budgeting purposes. There are no unexpected costs for major repairs, excluding accidents.

Savings Possible

Our comparison of LeRC vehicle operating costs to estimated IFMS lease costs showed that LeRC could achieve annual savings ranging from about \$50,000 to \$250,000 by converting its general-purpose vehicles to GSA leases. Savings varied by type of vehicle. The estimated annual savings for a sedan ranged from about \$250 to \$980, and the estimated annual savings for a truck van ranged from about \$1,500 to \$3,400. The lower savings are based on LeRC's estimated 8- to 10-year useful life of vehicles; the higher savings are based on an estimated useful life of 5 years. LeRC can protect its current investment in vehicles by converting to leased vehicles to coincide with its plans to replace aging vehicles. If a similar level of savings was achieved for all 961 of the NASA-owned, general-purpose vehicles, then the Agency's annual savings would range from about \$390,000 to \$1.9 million (see Appendix D).

RECOMMENDATION 2

The Associate Administrator for Management Systems and Facilities should establish policy for the approval of the Deputy Administrator that requires Centers that own vehicle fleets to:

- a. Update their lease versus purchase cost comparisons, consider the intangible benefits of leasing, and convert to leasing unless owning is more cost-effective.
- b. Establish a plan to phase in conversion to leasing, over a reasonable period, for those vehicle requirements for which leasing is more advantageous.

Management's Response

Concur. The Associate Administrator for Management Systems and Facilities has functional responsibility for NASA general-purpose vehicles and plans to issue a policy letter by

December 15, 1998, which will include actions to implement the recommendation. The policy will be incorporated into a future revision of NASA Policy Directive 6000.1, "Transportation Management." Potential benefits to be realized from conversion is contingent on several related factors that will be studied at each NASA Center with owned general-purpose vehicles. Consequently, it is premature to estimate the dollar value of savings at this time. The complete text of management's comments is in Appendix E.

***Evaluation of
Management's Response***

The planned action by the Associate Administrator is responsive to the recommendation. We deleted the reference to specific estimated savings from recommendation 2b and request that management provide us the actual savings achieved once action is completed.

Objectives, Scope, and Methodology

OBJECTIVES

The overall objective of the audit was to evaluate the effectiveness of NASA's Government vehicle program. Specifically, we determined whether:

- the four NASA Centers we reviewed appropriately sized their vehicle fleets to meet the Agency needs;
- NASA Centers procured and maintained vehicles for the Agency in the most economical manner; and
- alternative means were available to meet mission requirements.

SCOPE AND METHODOLOGY

The scope of this audit was to examine selected Centers' actions to manage their vehicle transportation programs as the Agency downsized. We focused on the Centers' acquisition and operation of their vehicle fleets. We performed work at NASA Headquarters, GSFC, KSC, LeRC, and MSFC.

To determine the four Centers' practices for procuring, operating, and maintaining vehicles and the rationale for the various approaches used, we:

- interviewed Center and Headquarters officials regarding the processes Centers used to determine the appropriate size of their vehicle fleets, and
- reviewed Agency program and budget documentation to identify the size and cost of the Centers' vehicle fleets.

To determine whether the four Centers were economically procuring and operating their vehicle fleets, we:

- interviewed NASA logistics personnel at the Centers and Headquarters;
- examined logistics management program and budget documents, studies, and papers;

Appendix A

- selected a random sample of vehicles at the four Centers audited and examined vehicle use records for FY 1996;
- evaluated the alternative methods the four Centers used to acquire and maintain their vehicle fleets; and
- compared and contrasted the vehicle operating and management practices at the four Centers.

We also solicited the views of GSA Fleet Management Program officials, who are knowledgeable about Government-wide vehicle management programs.

To determine how well the four Centers met vehicle needs and to identify potential vehicle management problems, we sent a questionnaire to a judgmental sample of vehicle users at the four Centers we audited.

MANAGEMENT CONTROLS REVIEWED

We reviewed NASA management policies, procedures, and guidelines for justifying vehicle assignments and acquiring vehicles. The controls were generally adequate to ensure that the vehicles needed to implement programs and accomplish missions were available. However, as discussed in the Center Vehicle Fleet Size and the Lease Versus Purchase sections of the report, controls to justify vehicle retention and ensure that vehicles are acquired in the most economical manner can be improved.

AUDIT FIELD WORK

Field work was conducted from September 1997 through June 1998 at GSFC, KSC, LeRC, MSFC, and NASA Headquarters. The audit was performed in accordance with generally accepted government auditing standards.

Appendix B

Summary of Vehicle Satisfaction Questionnaire

QUESTIONNAIRE RESULTS								
Quality of Service								
Questions	GSFC		KSC		LeRC		MSFC	
	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent
Transportation Office provided vehicles when needed?								
Seldom if ever	1	1%	2	6%	0	0%	2	4%
Less than half the time	1	1%	1	3%	0	0%	1	2%
About half the time	5	6%	0	0%	0	0%	0	0%
Very often	10	12%	3	9%	7	30%	9	18%
Always or almost always	57	71%	15	43%	16	70%	26	52%
No basis for rating	7	9%	13	37%	0	0%	12	24%
Did not answer question	0	0%	1	3%	0	0%	0	0%
TOTAL	81	100%	35	101%	23	100%	50	100%
Right type of vehicle provided?								
Seldom if ever	0	0%	1	3%	0	0%	0	0%
Less than half the time	0	0%	0	0%	0	0%	1	2%
About half the time	1	1%	0	0%	0	0%	2	4%
Very often	11	14%	2	6%	8	35%	7	14%
Always or almost always	61	76%	16	46%	15	65%	30	60%
No basis for rating	2	2%	13	37%	0	0%	9	18%
Did not answer question	6	7%	3	9%	0	0%	1	2%
TOTAL	81	100%	35	100%	23	100%	50	100%
Vehicle available or ready when promised?								
Seldom if ever	0	0%	0	0%	0	0%	0	0%
Less than half the time	0	0%	0	0%	0	0%	0	0%
About half the time	0	0%	0	0%	1	4%	1	2%
Very often	3	4%	2	6%	2	9%	7	14%
Always or almost always	65	80%	18	51%	20	87%	29	58%
No basis for rating	1	1%	12	34%	0	0%	11	22%
Did not answer question	12	15%	3	9%	0	0%	2	4%
TOTAL	81	100%	35	100%	23	100%	50	100%

Appendix B

Quality of Service (Continued)								
Questions	GSFC		KSC		LeRC		MSFC	
	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent
Vehicle provided fully fueled?								
Seldom if ever	0	0%	1	3%	0	0%	0	0%
Less than half the time	1	1%	0	0%	1	4%	0	0%
About half the time	4	5%	2	6%	0	0%	3	6%
Very often	16	20%	4	11%	9	39%	7	14%
Always or almost always	52	64%	10	29%	13	57%	25	50%
No basis for rating	8	10%	14	40%	0	0%	15	30%
Did not answer question	0	0%	4	11%	0	0%	0	0%
TOTAL	81	100%	35	100%	23	100%	50	100%
Transportation office met unexpected/urgent vehicle requests?								
Seldom if ever	1	1%	0	0%	0	0%	0	0%
Less than half the time	4	5%	0	0%	0	0%	1	2%
About half the time	8	10%	0	0%	0	0%	0	0%
Very often	14	17%	2	6%	3	13%	6	12%
Always or almost always	37	46%	10	29%	20	87%	19	38%
No basis for rating	15	19%	20	57%	0	0%	23	46%
Did not answer question	2	2%	3	9%	0	0%	1	2%
TOTAL	81	100%	35	100%	23	100%	50	100%
Paperwork to obtain vehicles reasonable?								
Seldom if ever	1	1%	0	0%	0	0%	0	0%
Less than half the time	0	0%	0	0%	0	0%	0	0%
About half the time	0	0%	0	0%	0	0%	0	0%
Very often	5	6%	2	6%	10	43%	7	14%
Always or almost always	68	84%	15	43%	13	57%	27	54%
No basis for rating	4	5%	14	40%	0	0%	14	28%
Did not answer question	3	4%	4	11%	0	0%	2	4%
TOTAL	81	100%	35	100%	23	100%	50	100%
Overall, transportation office provided high quality services?								
Seldom if ever	0	0%	0	0%	1	4%	0	0%
Less than half the time	0	0%	0	0%	4	17%	0	0%
About half the time	2	2%	1	3%	0	0%	0	0%
Very often	12	15%	1	3%	0	0%	8	16%
Always or almost always	60	74%	17	49%	18	78%	31	62%
No basis for rating	7	9%	12	34%	0	0%	11	22%
Did not answer question	0	0%	4	11%	0	0%	0	0%
TOTAL	81	100%	35	100%	23	99%	50	100%

Appendix B

Quality of Service (Continued)								
Questions	GSFC		KSC		LeRC		MSFC	
	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent
Vehicle request denied due to non-availability or right type of vehicle?								
No	28	35%	25	71%	23	100%	38	76%
Yes	50	62%	5	14%	0	0%	10	20%
Did not answer question	3	4%	5	14%	0	0%	2	4%
TOTAL	81	101%	35	99%	23	100%	50	100%
If your organization has an assigned vehicle, does it sit unused? How long?								
No	23	28%	20	57%	12	52%	18	36%
Yes	8	10%	10	29%	11	48%	9	18%
Not applicable	32	40%	1	3%	0	0%	8	16%
Does not know	11	14%	2	6%	0	0%	11	22%
Did not answer question	7	9%	2	6%	0	0%	4	8%
TOTAL	81	101%	35	101%	23	100%	50	100%
Could needs be met by checking out vehicles from the central pool and not keep the permanently assigned vehicle?								
No	36	44%	31	89%	15	65%	30	60%
Yes	5	6%	2	6%	7	30%	5	10%
Not applicable	29	36%	0	0%	0	0%	8	16%
Did not answer question	11	14%	2	6%	1	4%	7	14%
TOTAL	81	100%	35	101%	23	99%	50	100%

Appendix B

Quality of Vehicle								
Questions	GSFC		KSC		LeRC		MSFC	
	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent
Were vehicles provided in good working order?								
Seldom if ever	1	1%	0	0%	0	0%	0	0%
Less than half the time	0	0%	0	0%	0	0%	2	4%
About half the time	0	0%	0	0%	3	13%	1	2%
Very often	14	17%	3	9%	4	17%	11	22%
Always or almost always	57	70%	27	77%	16	70%	30	60%
No basis for rating	2	2%	3	9%	0	0%	4	8%
Did not answer question	7	9%	2	6%	0	0%	2	4%
TOTAL	81	99%	35	101%	23	100%	50	100%
Vehicles were clean when picked up or delivered?								
Seldom if ever	1	1%	0	0%	0	0%	0	0%
Less than half the time	0	0%	0	0%	0	0%	0	0%
About half the time	4	5%	3	9%	10	43%	1	2%
Very often	18	22%	3	9%	13	57%	13	26%
Always or almost always	50	62%	21	60%	0	0%	27	54%
No basis for rating	3	4%	5	14%	0	0%	7	14%
Did not answer question	5	6%	3	9%	0	0%	2	4%
TOTAL	81	100%	35	101%	23	100%	50	100%
Vehicles properly maintained?								
Seldom if ever	1	1%	0	0%	0	0%	0	0%
Less than half the time	0	0%	0	0%	0	0%	0	0%
About half the time	1	1%	0	0%	4	17%	2	4%
Very often	12	15%	6	17%	4	17%	12	24%
Always or almost always	57	70%	23	66%	15	65%	27	54%
No basis for rating	5	6%	4	11%	0	0%	7	14%
Did not answer question	5	6%	2	6%	0	0%	2	4%
TOTAL	81	99%	35	100%	23	99%	50	100%
Relatively new (late model) vehicles were provided?								
Seldom if ever	2	2%	0	0%	0	0%	3	6%
Less than half the time	2	2%	0	0%	19	83%	2	4%
About half the time	8	10%	0	0%	4	17%	3	6%
Very often	24	30%	1	3%	0	0%	11	22%
Always or almost always	34	42%	29	83%	0	0%	24	48%
No basis for rating	4	5%	3	9%	0	0%	5	10%
Did not answer question	7	9%	2	6%	0	0%	2	4%
TOTAL	81	100%	35	101%	23	100%	50	100%

Appendix B

Quality of Vehicle (Continued)								
Questions	GSFC		KSC		LeRC		MSFC	
	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent
Overall, transportation office provided quality vehicles?								
Seldom if ever	0	0%	0	0%	0	0%	0	0%
Less than half the time	0	0%	0	0%	0	0%	1	2%
About half the time	1	1%	0	0%	0	0%	2	4%
Very often	15	19%	2	6%	10	43%	10	20%
Always or almost always	55	68%	28	80%	13	57%	29	58%
No basis for rating	2	2%	3	9%	0	0%	6	12%
Did not answer question	8	10%	2	6%	0	0%	2	4%
TOTAL	81	100%	35	101%	23	100%	50	100%
If your organization has an assigned vehicle, is it scheduled for preventive maintenance?								
Yes, regularly	32	40%	29	83%	23	100%	27	54%
Yes, occasionally	3	4%	1	3%	0	0%	4	8%
Never or almost never	1	1%	0	0%	0	0%	0	0%
Not applicable	33	41%	1	3%	0	0%	7	14%
Did not answer question	12	15%	4	11%	0	0%	12	24%
TOTAL	81	101%	35	100%	23	100%	50	100%
Have you ever had a vehicle breakdown while you were using it?								
No	57	70%	3	9%	8	35%	38	76%
Yes	14	17%	30	86%	15	65%	9	18%
Did not answer question	10	12%	2	6%	0	0%	3	6%
TOTAL	81	99%	35	101%	23	100%	50	100%

Note: Percentages may not total 100 due to rounding.

Sample Selection and Calculation of Excess Vehicles and Potential Savings

Sample Selection

We selected samples from the vehicle universes at GSFC, KSC, LeRC, and MSFC which included all NASA-owned and GSA-leased, general-purpose vehicles as of September 30, 1996. We used the Defense Contract Audit Agency EZQUANT statistical sampling software to determine the sample size and randomly selected the vehicles for review. We used a two-step random sampling procedure to select the vehicles. The two-step process required selecting a small, initial sample and then expanding the sample if errors occurred. Vehicles that did not meet the GSA-recommended mileage guideline were counted as errors. Errors were found at all four Centers, and the samples were expanded. At LeRC, we reviewed vehicle use records for 91 percent of that Center's vehicle fleet.

Calculation of Excess Vehicles Using GSA Mileage Guidelines

To determine the number of excess vehicles, we compared the four Centers' vehicle usage for FY 1996 to the mileage guidelines recommended by GSA in Federal Property Management Regulations (41 CFR 101-39.3). GSA's recommended mileage guidelines ranged from 7,500 to 12,000 miles per year, depending on the class of vehicle. We used 7,500 miles per year, the lowest recommended mileage guideline, for our analysis of all classes of vehicles to allow the most flexibility for the Agency.

To calculate the number of excess vehicles at GSFC, KSC, LeRC, and MSFC using the GSA guideline required several steps. First, we determined the number of underutilized sample vehicles by comparing actual vehicle use to the GSA guideline. Next, we calculated the number of underutilized vehicles needed by dividing the FY 1996 mileage of those vehicles by the GSA mileage guideline. Subtracting that number from the number of underutilized sample vehicles provided the estimated number of excess sample vehicles. Then, we divided the number of excess sample vehicles by the sample size to determine the percentage of excess vehicles and used that percentage to estimate the total number of excess vehicles at the four Centers. The results of our analysis are shown in Table C-1.

Appendix C

Table C-1. COMPARISON TO GSA MILEAGE GUIDELINE								
CENTER	VEHICLE UNIVERSE FROM WHICH SAMPLE WAS DRAWN	SAMPLE SIZE	YEARLY GSA MILEAGE GUIDELINE	SAMPLE VEHICLES NOT MEETING GSA GUIDELINE		SAMPLE VEHICLES EXCESS IF GSA GUIDELINE APPLIED		CENTER VEHICLES EXCESS IF GSA GUIDELINE APPLIED
				No.	%	No.	%	
GSFC	222	59	7,500	47	80	28	47	104
KSC	1,449	85	7,500	52	61	20	24	348
LeRC	175	159	7,500	147	92	107	67	117
MSFC	333	116	7,500	113	97	66	57	190
Total	2,179	419		359		221		759

Calculation of Excess Vehicles Using Center Mileage Guidelines

To determine excess vehicles, we also compared Center vehicle usage for FY 1996 to the mileage guidelines at LeRC and KSC. LeRC had a 275 miles per month recommended guideline that the Center used as one factor to justify the need for vehicles, and we used that mileage guideline to analyze vehicle use at that Center. While KSC had not established a mileage guideline, two KSC contractors used a 400 miles per month guideline. We used the contractors' guideline to analyze vehicle usage at KSC. Neither GSFC nor MSFC had established mileage guidelines. For analysis purposes, we compared vehicle usage at those two Centers to the LeRC guideline.

To calculate the number of excess vehicles using the Center guidelines also required several steps. First, we determined the number of underutilized sample vehicles by comparing the actual use of the sample vehicles to the applicable Center guideline. Next, we calculated the number of underutilized vehicles needed by dividing the total mileage those vehicles had been driven by the applicable mileage guideline. Subtracting that number from the number of underutilized sample vehicles provided the estimated number of excess sample vehicles. Then, we divided the number of excess sample vehicles by the sample size to determine the percentage of excess vehicles and used that percentage to project the total number of excess Center vehicles. The results of our analysis are shown in Table C-2.

Appendix C

Table C-2. COMPARISON TO CENTER MILEAGE GUIDELINE								
CENTER	VEHICLE UNIVERSE FROM WHICH SAMPLE WAS DRAWN	SAMPLE SIZE	MONTHLY CENTER MILEAGE GUIDELINE	SAMPLE VEHICLES NOT MEETING CENTER GUIDELINE		SAMPLE VEHICLES EXCESS IF CENTER GUIDELINE APPLIED.		CENTER VEHICLES EXCESS IF CENTER GUIDELINE APPLIED
				No.	%	No.	%	
GSFC	222	59	275	28	47	14	24	53
KSC	1,449	85	400	23	27	10	12	174
LeRC	175	159	275	115	72	75	47	82
MSFC	333	116	275	70	60	31	27	90
Total	2,179	419		236		130		399

Estimate of Potential Cost Savings

To estimate the potential savings from eliminating excess vehicles, we used the September 30, 1996, GSA lease rates. To be conservative, we used the lease rate for compact sedans which is the lowest cost, general-purpose vehicle that NASA Centers typically use. The lease rate for a compact sedan was \$1,752 per year and about \$.11 per mile. We calculated the yearly mileage cost by multiplying the average yearly mileage of the Center vehicles by the GSA mileage rate. To complete the calculation, we added the yearly GSA mileage cost to the yearly lease payments, and multiplied that amount by the estimated number of excess vehicles. Tables C-3 and C-4 show our estimates of potential savings based on applying the GSA and Center mileage guidelines.

Table C-3. POTENTIAL SAVINGS IF GSA GUIDELINE IS APPLIED							
CENTER	AVERAGE YEARLY MILEAGE	GSA MILEAGE RATE	GSA LEASE: MILEAGE COST PER YEAR	GSA LEASE PAYMENTS PER YEAR	GSA YEARLY LEASE COST	CENTER VEHICLES EXCESS PER GSA GUIDELINE	ESTIMATED SAVINGS
GSFC	4,908	\$.105	\$ 515	\$ 1,752	\$ 2,267	104	\$ 235,768
KSC	7,189	.105	755	1,752	2,507	348	872,436
LeRC	2,825	.105	297	1,752	2,049	117	239,733
MSFC	3,500	.105	368	1,752	2,120	190	402,800
Total						759	\$1,750,737

Table C-4. POTENTIAL SAVINGS IF CENTER GUIDELINES ARE APPLIED							
CENTER	AVERAGE YEARLY MILEAGE	GSA MILEAGE RATE	YEARLY MILEAGE COSTS	YEARLY LEASE PAYMENTS	YEARLY GSA LEASE COST PER VEHICLE	CENTER VEHICLES EXCESS PER CENTER GUIDELINES	ESTIMATED SAVINGS
GSFC	4,908	\$.105	\$ 515	\$ 1,752	\$ 2,267	53	\$120,151
KSC	7,189	.105	755	1,752	2,507	174	436,218
LeRC	2,825	.105	297	1,752	2,049	82	168,018
MSFC	3,500	.105	368	1,752	2,120	90	190,800
Total						399	\$915,187

Appendix D

Lease Versus Purchase Analysis and Calculation of Potential Savings at LeRC

We compared LeRC's vehicle ownership costs to GSA's IFMS FY 1996 lease costs to determine the most economical manner of obtaining vehicles. We limited the analysis to the 124 general-purpose cars, light trucks, and vans included in our review. At LeRC's request, we used 8 to 10 years, depending on vehicle type, as the useful life of these vehicles. Also, we compared costs using an estimated useful life of 5 years based on the Internal Revenue Service's guidance on the recovery period for vehicles. We obtained Center cost information from LeRC's FY 1996 Vehicle Operations Report, and GSA provided lease costs and vehicle purchase prices and residual values.

Calculation of LeRC Ownership Costs for Each Type of Vehicle

Our calculations include the average operating and maintenance costs over the life of the vehicles, the GSA FY 1997 price for purchasing comparable replacement vehicles, the residual value of vehicles at the end of their useful life, and a 5-percent cost of capital which was based on the Treasury Current Value of Funds Rate. Tables D-1 and D-2 show LeRC's estimated costs to own, operate, and maintain vehicles using the differing assumptions concerning the useful life of the vehicles.

**Table D-1. Estimated Lifetime Ownership Costs by Type of Vehicle
Using 8 to 10 Years as the Useful Life**

Class of Vehicle	Yearly Operating Cost Per Vehicle	Estimated Useful Life (Years)	Cost Over Life of Vehicle	GSA Purchase Price	Less: Residual Value	Sub-Total	Cost of Capital	Total Ownership Costs
Sedans	\$ 447	8	\$ 3,576	\$13,500	\$ 0.00	\$ 17,076	\$ 854	\$ 17,930
Pickup A5s	544	10	5,440	17,500	0.00	22,940	1,147	24,087
Pickup A6s	1,302	10	13,020	20,200	0.00	33,220	1,661	34,881
Truck Vans	1,471	10	14,710	23,800	0.00	38,510	1,926	40,436
Vannettes	725	10	7,250	23,800	0.00	31,050	1,553	32,603
Station Wagons	924	8	7,392	17,500	0.00	24,892	1,245	26,137
Step Vans	1,724	10	17,240	24,400	0.00	41,640	2,082	43,722
Buses	4,285	10	42,850	54,700	0.00	97,550	4,878	102,428

Note: The GSA Cleveland Fleet Management Center informed us that the residual value of vehicles 8 to 10 years old would be zero.

Appendix D

**Table D-2. Estimated Lifetime Ownership Costs by Type of Vehicle
Using 5 Years as the Useful Life**

Class of Vehicle	Yearly Operating Cost Per Vehicle	Estimated Useful Life (Years)	Cost Over Life of Vehicle	GSA Purchase Price	Less: Residual Value	Sub-Total	Cost of Capital	Total Ownership Costs
Sedans	\$ 447	5	\$ 2,235	\$13,500	\$1,593	\$14,142	\$ 707	\$14,849
Pickup A5s	544	5	2,720	17,500	2,065	18,155	908	19,063
Pickup A6s	1,302	5	6,510	20,200	2,384	24,326	1,216	25,542
Truck Vans	1,471	5	7,355	23,800	2,808	28,347	1,417	29,764
Vannettes	725	5	3,625	23,800	2,808	24,617	1,231	25,848
Station Wagons	924	5	4,620	17,500	2,065	20,055	1,003	21,058
Step Vans	1,724	5	8,620	24,400	2,879	30,141	1,507	31,648
Buses	4,285	5	21,425	54,700	6,455	69,670	3,484	73,154

Calculation of GSA Lease Costs for Each Type of Vehicle

GSA's lease costs include both a monthly lease charge and a mileage charge. The lease costs cover all operating, maintenance, and replacement costs. We used the miles the vehicles had been driven in FY 1996 to calculate the yearly mileage charge. Tables D-3 and D-4 show the estimated Center lease costs using the different assumptions concerning the useful life of the vehicles.

**Table D-3. Estimated Lifetime Lease Costs by Type of Vehicle
Using 8 to 10 Years as the Estimated Useful Life**

Class of Vehicle	Average Yearly Miles Driven	Yearly GSA Lease Charge and Mileage Charge	Estimated Useful Life (Years)	Lease Cost Over Life of Vehicle	Mileage Cost Over Life of Vehicle	Total Lease Cost
Sedans	1,988	\$1,788/\$.10 per mi.	8	\$14,304	\$ 1,591	\$15,895
Pickup A5s	2,661	1,980/ .13 per mi.	10	19,800	3,460	23,260
Pickup A6s	2,977	2,472/ .17 per mi.	10	24,720	5,060	29,780
Truck Vans	1,295	2,316/ .155 per mi.	10	23,160	2,008	25,168
Vannettes	4,325	2,400/ .155 per mi.	10	24,000	6,703	30,703
Station Wagons	3,229	2,520/ .10 per mi.	8	20,160	2,583	22,743
Step Vans	1,442	2,712/ .17 per mi.	10	27,120	2,451	29,571
Buses	11,372	4,608/ .265 per mi.	10	46,080	30,135	76,215

Appendix D

**Table D-4. Estimated Lifetime Lease Costs by Type of Vehicle
Using 5 Years as the Estimated Useful Life**

Class of Vehicle	Average Yearly Miles Driven	Yearly GSA Lease Charge and Mileage Charge	Estimated Useful Life (Years)	Lease Cost Over Life of Vehicle	Mileage Cost Over Life of Vehicle	Total Lease Cost
Sedans	1,988	\$1,788/\$.10 per mi.	5	\$ 8,940	\$ 994	\$ 9,934
Pickup 4x4s	2,661	1,980/ .13 per mi.	5	9,900	1,730	11,630
Pickup A6s	2,977	2,472/ .17 per mi.	5	12,360	2,530	14,890
Truck Vans	1,295	2,316/ .155 per mi.	5	11,580	1,004	12,584
Vannettes	4,325	2,400/ .155 per mi.	5	12,000	3,352	15,352
Station Wagons	3,229	2,520/ .10 per mi.	5	12,600	1,614	14,214
Step Vans	1,442	2,712/ .17 per mi.	5	13,560	1,226	14,786
Buses	11,372	4,608/ .265 per mi.	5	23,040	15,068	38,108

Computation of Cost Savings

To determine the estimated savings from converting LeRC's owned vehicles to GSA lease, we calculated the savings for each class of vehicle and multiplied that amount by the number of vehicles in the class. Tables D-5 and D-6 show the estimated savings attributable to leasing using the different assumptions concerning the useful life of the vehicles.

**Table D-5. Estimated Cost Savings
Using 8 to 10 Years as the Estimated Useful Life**

Class of Vehicle	Lifetime Ownership Costs Per Vehicle	Lifetime Lease Cost Per Vehicle	Lifetime Savings Per Vehicle	Number of Vehicles	Lifetime Fleet Savings	Estimated Useful Life (Years)	Annual Fleet Savings
Sedans	\$ 17,930	\$ 15,895	\$ 2,035	14	\$ 28,490	8	\$ 3,561
Pickup A5s	24,087	23,260	827	49	40,523	10	4,052
Pickup A6s	34,881	29,780	5,101	7	35,707	10	3,571
Truck Vans	40,436	25,168	15,268	11	167,948	10	16,795
Vannettes	32,603	30,703	1,900	34	64,600	10	6,460
Station Wagons	26,137	22,743	3,394	2	6,788	8	849
Step Vans	43,722	29,571	14,151	3	42,453	10	4,245
Buses	102,428	76,215	26,213	4	104,852	10	\$10,485
Total	\$322,224	\$253,335	\$68,889	124	\$491,361		\$50,018

Appendix D

**Table D-6. Estimated Cost Savings
Using 5 Years as the Estimated Useful Life**

Class of Vehicle	Lifetime Ownership Costs Per Vehicle	Lifetime Lease Cost Per Vehicle	Lifetime Savings Per Vehicle	Number of Vehicles	Lifetime Fleet Savings	Estimated Useful Life (Years)	Annual Fleet Savings
Sedans	\$ 14,849	\$ 9,934	\$ 4,915	14	\$ 68,810	5	\$ 13,762
Pickup A5s	19,063	11,630	7,433	49	364,217	5	72,843
Pickup A6s	25,542	14,890	10,652	7	74,564	5	14,913
Truck Vans	29,764	12,584	17,180	11	188,980	5	37,796
Vannettes	25,848	15,352	10,496	34	356,864	5	71,373
Station Wagons	21,058	14,214	6,844	2	13,688	5	2,738
Step Vans	31,648	14,786	16,862	3	50,586	5	10,117
Buses	73,154	38,108	35,046	4	140,184	5	28,037
Total	\$240,926	\$131,498	\$109,428	124	\$1,257,893		\$251,579

Extrapolation of Cost Savings to All NASA-owned General Purpose Vehicles

We did not compare ownership costs to lease costs at all Centers that owned general-purpose vehicles. For illustrative purposes, however, we used the following methodology to extrapolate the estimated savings at LeRC to all NASA-owned, general-purpose vehicles. First, we divided the 961 NASA-owned vehicles by the 124 LeRC-owned vehicles (which we used to calculate savings) to obtain the multiplication factor of 7.75 needed to extrapolate LeRC's estimated savings to all NASA-owned vehicles. Then, we multiplied LeRC's estimated savings by the multiplication factor to estimate NASA-wide savings shown in Table D-7.

Table D-7. Extrapolation of Cost Savings

Estimated Useful Life of Vehicles	Estimated LeRC Savings from Converting to Leasing	Multiplication Factor	Estimated NASA-wide Savings
8 - 10 Years	\$ 50,018	7.75	\$ 387,640
5 Years	\$251,579	7.75	\$1,949,737

Management's Response

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



Report to Congress: JL

SEP 22 1998


TO: W/Assistant Inspector General for Auditing
FROM: J/Associate Administrator for Management Systems and Facilities
SUBJECT: Draft Report: NASA General-Purpose Vehicles
Acquisition and Use (Assignment Number A-HA-97-068)

We have completed our review of the subject report as requested. Our comments, along with summary responses from the audited Centers, are enclosed.

We concur with each of the stated recommendations in the draft report. Action to accomplish the recommendations is being initiated and is expected to be complete by December 15, 1998.

Your findings and recommendations for the improvement of the NASA vehicle management program are appreciated. We are pleased that the OIG has determined that current controls are generally adequate and that Center Fleet Managers are customer oriented and generally very effective in meeting customer vehicle needs. We are especially appreciative of the cooperative spirit and attitude displayed by the audit team and their willingness to work with the vehicle management community throughout the audit period.

If you have any questions or comments regarding the response, or need further explanation, please contact me at 358-2800, or the Agency Manager for Transportation Programs, Mr. James W. Hawkins, Jr., at 358-2292.


Jeffrey E. Sutton

Enclosure

cc:
B/Mr. Holz
JM/Ms. Green
GSFC/200-0/Ms. Foster
KSC/FF/Mr. Jones
LeRC/3-9/Dr. Earls
MSFC/AA01/Ms. Cloud

**AUDIT
of
NASA GENERAL-PURPOSE VEHICLES ACQUISITION AND USE**

On August 24, 1998, the Assistant Inspector General for Auditing issued a draft report, subject as above. The report identified two recommendations to the Associate Administrator for Management Systems and Facilities to improve vehicle management operations across the Agency. Also included were appendices detailing analyses at the audited Centers which contributed to the recommendations.

Following are the two recommendations and our associated responses. Summary comments from the audited Centers are attached.

Recommendation 1:

The Associate Administrator for Management Systems and Facilities should establish policy for the approval of the Deputy Administrator that requires Centers to:

- a. Establish and use mileage criteria as one key factor for justifying vehicles.
- b. Use vehicle utilization review boards to assess current vehicle usage and requirements based on minimum use guidelines, vehicle logs, and updated vehicle justifications.
- c. Return to GSA or dispose of any vehicles that are determined to be excess, thereby putting about \$900,000 to \$1.7 million to better use.

Management response:

Concur. Policy establishment for NASA general-purpose vehicles is within the functional management responsibility of the Associate Administrator for Management Systems and Facilities. Targeted completion date for publishing a policy letter is December 15, 1998. The policy will be incorporated in a future revision of NPD 6000.1, Transportation Management. While we concur in a savings to be realized from disposing of excess vehicles, we are unable at this time to assess an anticipated dollar value. Further, we believe it premature to make such estimates due to concerns of our Centers as expressed in the attachment.

Recommendation 2:

The Associate Administrator for Management Systems and Facilities should establish policy for the approval of the Deputy Administrator that requires Centers that own vehicle fleets to:

- a. Update their lease versus purchase cost comparisons, consider the intangible benefits of leasing, and convert to leasing unless owning is more cost effective.

Enclosure

Appendix E

b. Establish a plan to phase in conversion to leasing, over a reasonable period, for those vehicle requirements for which leasing is more advantageous. The conversion will allow LeRC to put \$50,000 to \$250,000 to better use annually.

Management response:

Concur. Policy establishment for NASA general-purpose vehicles is within the functional management responsibility of the Associate Administrator for Management Systems and Facilities. Targeted completion date for publishing a policy letter is December 15, 1998. The policy will be incorporated in a future revision of NPD 6000.1, Transportation Management. Potential benefits to be realized from conversion is contingent upon several related factors that will be studied at each NASA Center with owned general purpose vehicles. Further, we believe it premature to make such estimates due to concerns of our Centers as expressed in the attachment.

Consolidated Summary of NASA Centers' responses to General-Purpose Vehicles Audit

GSFC: GSFC partially concurs with the two OIG recommendations calling for NASA Centers to reduce costs by identifying and eliminating underutilized general-purpose vehicles and by acquiring and maintaining vehicles in the most economical manner. GSFC is concerned with the analysis methodology used by the OIG in developing the recommendation for eliminating underutilized vehicles at the Centers. The OIG Draft Report recognizes that other factors can be considered in determining vehicle retention, however, the report bases its findings solely on mileage criteria. It appears that the OIG used mileage criteria to identify a specific number of vehicles that could be eliminated at the Centers and the associated cost savings to the Agency of \$900K to \$1.7M. GSFC believes that this amount is inflated and that use of a full range of combination criteria would justify retaining more of the vehicles, thereby reducing the OIG-estimated potential cost savings.

GSFC is also concerned that the OIG Draft Report does not recognize other factors associated with effectively managing total motor vehicle assets. GSFC believes that our special purpose vehicles/equipment and project support requirements must be considered in the overall management of our motor vehicle assets. Costs associated with this aspect of the operation are more efficiently and effectively managed through a total fleet management/garage operation at GSFC. It is GSFC's belief that, over time, this approach is more efficient, cost effective and better meets our mission requirements. Furthermore, the OIG Draft Report makes several references to GSA established mileage criteria, as well as specific mileage criteria established at Lewis Research Center (LeRC) and Kennedy Space Center (KSC). While GSFC does not have a specific mileage figure established as a documented criteria, we do believe that the GSA recommended mileage criteria is not attainable nor practical at our Center. Our vehicles historically obtain low mileage due to our Center's size and location, mission requirements and the type of services provided. Except for our motor pool dispatch vehicles, most of our vehicles are used daily and driven short distances within the Center's locale. They are also shared by many employees within an organization and used several times daily performing institutional and project/engineering related services for Center customers. We believe that each of these factors plays a part in retention criteria and that each Center should have the latitude to establish practical criteria for its location.

GSFC agrees that Centers should return to GSA or dispose of any vehicles that are determined to be excess, and already complies with this recommendation. We do not concur, however, with the cost savings documented in the OIG Draft Report. As mentioned previously, the OIG Draft Report only used mileage criteria to determine a specific number of vehicles that should be eliminated at the Centers to develop their cost savings to the Agency of \$900K to \$1.7M. GSFC believes that this amount is inflated. Use of the full range of combination criteria for vehicle retention at each NASA Center is more appropriate to meet NASA's mission needs. By applying this more realistic methodology, each Center would justify retaining more of the vehicles, thereby reducing the OIG-estimated potential cost savings. At GSFC, for example,

Attachment

Appendix E

we believe that our motor vehicle fleet is appropriately sized based upon the numerous management reviews conducted over the years.

GSFC believes that decisions to own or lease a motor vehicle fleet should include additional factors, not just costs, such as how an in-house vehicle maintenance capability supports the Center's overall mission operations. During August 1998, GSFC updated the costs associated with the original 1991 Consolidated Omnibus Budget Reconciliation Act (COBRA) Study. The findings revalidated our original conclusions that it is more cost effective for us to maintain a NASA-owned fleet, saving NASA approximately \$140K annually. Additionally, we recoup approximately \$41K annually from fleet turnover sales, which are used to fund replacement vehicles. GSFC also has some concerns regarding the OIG finding stated on page 10 of the report that reads, "In addition, the studies did not fully take into account the intangible benefits of leasing, such as newer model leased vehicles and the greater flexibility in changing fleet size and mix." GSFC has considered these intangible benefits during its analyses. While newer model leased vehicles may be a benefit to leasing from GSA, we have not found that GSA has the ability to provide the flexibility the OIG Draft Report suggests.

GSFC is concerned that the OIG Draft Report does not appear to consider managing total motor vehicle assets, which better satisfies our mission requirements at lower costs than leasing. At GSFC, this includes the continued requirement for a garage operation at both our Greenbelt, MD, site and our Wallops Island, VA, site, to maintain and repair over 300 pieces of special purpose vehicles and equipment, such as aerial lifts, cranes, mobile generators, forklifts, etc. In addition, this in-house maintenance capability is used to support over 40 flight projects, such as Sounding Rocket campaigns at remote sites, maintenance of the Hubble Space Telescope Environmental Control System, etc. Besides the increased costs and mission impact from not having these in-house maintenance capabilities to support the special purpose vehicles and equipment, these capabilities also support our general purpose motor vehicle fleet "faster-better-cheaper" than leasing from GSA. It should also be noted that GSA does not offer leasing services for special purpose vehicles and equipment. Accordingly, we believe that, over time, our approach to "total motor vehicle management" is more efficient and cost effective and better satisfies our mission requirements.

KSC: The minimum GSA guidelines of 7,500 to 12,000 miles is too high given the unique mission at KSC. If the fleet is reduced by 348 vehicles the mission could be jeopardized. We feel the 275 miles per month criteria is a reasonable guideline to support our mission requirements. Vehicle Use Records should be used to determine minimum mileage criteria, and adjustments made to the fleet as necessary. KSC will reestablish a review board chaired by the Chief, Transportation and Services Office. The Board will periodically review vehicle use records and determine changes to the fleet. It should be noted that given the nature of the current performance based contracts, the contractor makes the determination as to the number of vehicles necessary to accomplish his mission. The government reserves the right to assess that utilization and factor the finding into the award fee determination. KSC has already taken steps to reduce its general purpose vehicles. The KSC Transportation Office reduced its fleet by 26% (12 of 46 vehicles) in July 1998.

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LeRC: LeRC uses mileage criteria as one factor in determining individual vehicle assignments. LeRC has a Vehicle Utilization Review Board, chaired by the Center Deputy Director, in place. It meets, as a minimum, triennially or on call of the Vehicle Operations Officer to evaluate current vehicle requirements and assignments. Established vehicle assignment criteria, current vehicle logs, vehicle justifications, and other available information are used during the review process. LeRC has a plan in place that will eliminate, by the end of FY 2001, all vehicles in the fleet that are under utilized or in excess of Center requirements. LeRC evaluates lease versus purchase cost comparisons on a vehicle-by-vehicle basis. The intangible benefits of leasing are a part of that evaluation. The results of this process determine our ultimate acquisition method. LeRC has a Motor Vehicle Replacement Schedule that is updated and kept current on a regular basis. This replacement plan is used to phase in conversion to leasing, over a reasonable period, for those vehicle requirements for which leasing is more advantageous and cost effective.

MSFC: MSFC has taken significant steps in the last couple of years to reduce the size of its vehicle fleet. Presently, MSFC has 116 vehicles from GSA. This reduction from the quantity of 333 that was mentioned in the report, was accomplished by major contractual changes (performance-based contracting) and downsizing. On page 4 of the report the OIG states that under the GSA criteria 190 of MSFC's vehicles would be excessed, which would leave us with 143 vehicles. Currently MSFC only has 116 vehicles, therefore, we have exceeded the GSA criteria by using MSFC established vehicle standards. MSFC will establish a minimum mileage usage factor for each type/model vehicle that will be used as part of our minimum use guidelines. However, MSFC does not want to base our vehicle justifications strictly on a mileage factor. There are other factors, such as, mission requirements, days used, the remoteness of building locations, etc. that must be considered when determining the need for a vehicle. MSFC currently uses a vehicle utilization review board to assess current vehicle needs.

Appendix F

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Appendix F

Non-NASA Federal Organizations and Individuals

Assistant to the President for Science and Technology Policy
Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Budget Examiner, Energy Science Division, Office of Management and Budget
Associate Director, National Security and International Affairs Division,
General Accounting Office
Special Counsel, House Subcommittee on National Security, International Affairs, and Criminal
Justice
Professional Assistant, Senate Subcommittee on Science, Technology, and Space

Chairman and Ranking Minority Member Congressional Committees and Subcommittees

Senate Committee on Appropriations
Senate Subcommittee on VA, HUD and Independent Agencies
Senate Committee on Commerce, Science and Transportation
Senate Subcommittee on Science, Technology and Space
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on VA, HUD and Independent Agencies
House Committee on Government Reform and Oversight
House Committee on Science
House Subcommittee on Space and Aeronautics, Committee on Science

Congressional Member

Honorable Pete Sessions, U.S. House of Representatives

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