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REPORT TO THE CONGRESS

Opportunity To Reduce Costs Substantially In Acquiring Teletypewriters For Use In The Advanced Record System Communications Network B-162104

General Services Administration

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

SEPT. 12, 1968

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-162104

To the President of the Senate and the
Speaker of the House of Representatives

This is our report on an opportunity for the General Services Administration to reduce substantially the costs of acquiring teletypewriters for use in its Advanced Record System communications network.

Copies of this report are being sent to the Director, Bureau of the Budget, and to the Administrator of General Services.

Elmer B. Staats
Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

OPPORTUNITY TO REDUCE COSTS SUBSTANTIALLY IN ACQUIRING TELETYPEWRITERS FOR USE IN THE ADVANCED RECORD SYSTEM COMMUNICATIONS NETWORK
General Services Administration B-162104

DIGEST

WHY THE REVIEW WAS MADE

The Advanced Record System (ARS) is a Government-operated communications network leased by the General Services Administration (GSA) lander contract with The Western Union Telegraph Company (WU).

The ARS consists of an automatic circuit switching network with teletypewriters attached to connect it with civil agency locations. It has three switching centers, each equipped with a data processing system to handle message switching functions.

The General Accounting Office examined into the leasing of teletypewriters under the contract to determine if they had been acquired by the most economical method because:

--leasing of the teletypewriters required the expenditure of large amounts of funds;

--GSA, as a matter of practice, was obtaining communications equipment almost exclusively through leased procurement; and

--preliminary information had shown that significant cost differences existed between the alternative methods of acquiring the teletypewriters and related maintenance.

FINDINGS AND CONCLUSIONS

GSA did not evaluate adequately the relative financial advantages of acquiring ARS teletypewriters by means other than leasing.

GAO estimated that, after the present contract expired, the acquisition of the teletypewriters by an alternative method or the negotiation of a new leasing arrangement more in line with the cost of an alternative method could result in cost reductions ranging Prom $2.4 million to $5 million over the remaining useful life of the teletypewriters. (See pp. 14, 17, and 23.)

GAO believed, however, that GSA's ability to pursue the most economical alternative at the expiration of the present leasing arrangement would

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be limited because the tariff filed by WU for ARS service contained a provision which restricted GSA to using a leasing arrangement in acquiring teletypewriters for use by civil agencies.

COMMENDATIONS OR SUGGESTIONS

GAO ommended that the Administra of neral Services:

--Request WU to initiate action with the Federal Communications Commission (FCC) to eliminate the tariff provision that prohibits the use of Government-furnished teletypewriter equipment.

--If WU does not act, institute proceedings before the FCC to have the provision eliminated.

--In future communications procurements, give consideration to alternative means of obtaining the services and to the relative costs thereof so that the means most favorable to the Government may be determined.

AGENCY ACTIONS

The Administrator agreed with the recommendations but stated that purchase of the teletypewriters was not a practically available option because, in GSA's opinion, a single contractor was, from a service standpoint, essential to placing responsibility for system maintenance and operation.

ISSUES FOR FURTHER CONSIDERATION

GAO urges the Administrator to reconsider his position in light of its evaluation thereof. (See pp. 19 through 24.)

LEGISLATIVE PROPOSALS

None.

Contents

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ISSUES FOR FURTHER CONSIDERATION

GAO urges the Administrator to reconsider his position in light of its evaluation thereof. (See pp. 19 through 24.)

LEGISLATIVE PROPOSALS

None.

INTRODUCTION

The General Accounting Office has made a review of certain aspects of the Advanced Record System communications network contract negotiated by the General Services Administration with The Western Union Telegraph Company. The ARS, which is the record communications portion of the Federal Telecommunications System, began operation in February 1966. Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Our review consisted primarily of an examination into the leasing of teletypewriter equipment under the circuit switching network (CSN) provisions of the contract to determine if the teletypewriters for use in the ARS had been acquired by the most economical method. We did not make an overall evaluation of the GSA communications program. The scope of our review is discussed in detail on page 26 of this report.

We undertook this review because of the significant amount of funds that GSA was expending in leasing teletypewriters and because of our observation that GSA, as a matter of practice, was obtaining communications equipment almost exclusively through leased procurement.

BACKGROUND

Under the authority of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 481), GSA is responsible for the procurement and management of telecommunications services for Federal agencies. Telecommunications services include telephone, teletypewriter, facsimile, and certain other services. Pursuant to the act, GSA has issued regulations that provide that GSA periodically survey the requirements for and utilization of communications services and facilities and review the contracts and rates under which telecommunications services are procured. Also, GSA is required, with due regard to the program activities of the civil agencies, to make recommendations deemed necessary and appropriate in the area of communications and the Federal civil agencies are required to carry out such recommendations.

In January 1961, GSA's authority and responsibility in the area of Federal communications was further strengthened when it was directed by the Bureau of the Budget, under authorization of the President, to go forward with the establishment of a unified telecommunications system to be known as the Federal Telecommunications System. The new system, as implemented by GSA, provides for integrating the various communications systems, including teletypewriter networks, of most of the Federal civil agencies located throughout the United States. The system provides automatic data transmission, compatibility with the military system of telecommunications, proper security precautions, and priority of use. It also serves the daily needs of the civil agencies and has engineering features that will be of value during emergencies.

Prior to the ARS, the GSA teletypewriter system consisted of a network leased from WU that connected general-usage teletypewriter stations located in major cities throughout the United States. The system comprised leased circuits and nine manually operated message switching centers (MSCs), each of which interconnected with switching centers in Charleston, West Virginia, and Washington, D.C. Each MSC handled local area traffic and relayed messages to the other MSCs by way of either the Washington or the Charleston switching centers.

As of June 1963, just prior to issuance of the request for quotations for the ARS, GSA teletypewriter network operating costs totaled approximately $3.5 million a year. The network comprised 182 stations, of which 80 were operated by GSA and the remainder by other civil agencies. The network was handling approximately 65 million text words a year, comprising both single- and multiple-address traffic. Although the prior system had been performing at a satisfactory level, it was considered by GSA and other agencies to be lacking many desirable features.

On October 4, 1962, the Commissioner, Transportation and Communications Service (TCS), GSA, organized the

Advanced Record Design Group (ARDG), comprising a project officer and various GSA communications officials, whose purpose was to develop a modern unified system for record communications to be called the Advanced Record System. The Aries Corporation, a private consulting firm, was hired to provide advisory services on communications matters to the ARDG. The ARDG was to review and analyze the existing GSA teletypewriter network and determine the future record communications requirements of the civil agencies and departments of the Government, using the latest techniques available. The group was to project civil agency record requirements €or a 5-year period and make recommendations as to how they should be provided.

The ARDG completed its studies in June 1963 and issued a report to the Commissioner, TCS, outlining the steps to be taken to implement and develop the ARS. The report specified the characteristics of the proposed system, including the use of automatic data processing equipment as message switching equipment, and outlined requirements to ensure compatibility of the system with prospective agency users' needs. Included as an appendix to the report was the format of a proposed request 'for quotations and associated specifications. On August 1, 1963, the Commissioner, TCS, submitted the proposed request for quotations to the Administrator of General Services for review and approval.

An evaluation group, comprising the ARDG members and GSA legal and financial representatives, also was organized to review responses to the request for quotations and to recommend one company or a combination of companies for participation in the ARS contract.

On August 5, 1963, GSA issued the request for quotations to 43 companies; later it issued the request to 9 additional companies. The companies were requested to furnish quotations for (1) supplying, installing, and maintaining on a lease basis a national CSN and (2) supplying, delivering, installing, and maintaining on a lease, lease/purchase, or outright purchase basis three MSCs. Prospective contractors were given 45 working days in which to respond to the request €or quotations. Subsequently, a 3-day extension was granted to accommodate those companies which were unable to meet the prescribed response date.

Proposals were received from eight companies, of which two--American Telephone and Telegraph Company (AT&T) and WU--made offers to supply GSA with total systems services and six--manufacturers of data processing equipment--made offers to supply GSA with MSC equipment only. The AT&T and WU proposals included separate price quotations for the CSN and the MSCs in order to allow for a separate award of the system's components, if deemed appropriate.

After evaluating the proposals submitted by AT&T and WU for the CSN, the evaluation group concluded that, although WU's price quotations were higher than AT&T's, the system proposed by WU was technically superior and provided for greater survivability and assurance of operation under emergency conditions. Therefore, the group favored acceptance of the WU proposal.

With regard to the eight MSC proposals, three were eliminated from consideration because of their relatively high costs or because of the manufacturers' inability to meet the technical requirements and one was withdrawn by the manufacturer because of the technical requirements. AT&T also was eliminated from consideration because its proposal, which provided for utilizing existing AT&T facilities, did not meet the basic requirements of the ARS.

The remaining three proposals, submitted by WU, International Business Machines Corporation (IBM), and International Telephone and Telegraph Company (ITT), were considered by the ARS evaluation group to be capable of meeting the requirements of the ARS. On the basis of a comparative price analysis of the three proposals projected over a 5-year period, the evaluation group, in its report dated December 16, 1963, recommended acceptance of the WU proposal for service to be provided on all new equipment dedicated exclusively to GSA use.

Therefore, a decision was made to negotiate with WU for the entire ARS. In this connection, the contracting officer had made a finding and determination that, due to the highly specialized and technical nature of the proposed ARS, procurement through formal advertising would be impractical. GSA also had stated that it preferred dealing with one contractor who could be held solely responsible for the total systems performance. Negotiations with WU were undertaken in December 1963, which resulted in the award of a contract on January 27, 1964.

The system being provided under the WU contract is a Government-operated closed network which does not share switching equipment and interconnecting communications channels with other Government or commercially operated systems. It is a combination of an automatic CSN, with teletypewriters attached to connect it with various civil agency locations, and three MSCs, each equipped with a Univac 418-I processor system to handle message switching €unctions.

The contract provides for implementation of the ARS in three phases. Phase I was to become operational by December 31, *1964*, and phase III by May 1, 1965. The term of the contract is €or a period of 5 years from the date of initial operation and acceptance by the Government on each of the three phases of the MSCs. **A** full 5-year period will run for each phase of the MSCs, starting with the date of initial operation at Romney, West Virginia, and ending 5 years from the date of initial operation at Berwick, Kansas. Therefore, the duration of the contract will be about *5-1/2* years. Phase I became operational in February 1966 or over a year later than was contemplated under the contract.

The CSN of the ARS is being leased under tariffs approved by the Federal Communications Commission. WU and **GSA** plans indicate that in its initial configuration the CSN was to comprise about 1,900 units of teletypewriter subscriber equipment, **3** junction switching offices, *24* lower echelon switching exchanges or distriet offices, and necessary interconnecting transmission facilities. In addition, it was to have a capability of expanding to approximately *4,000* teletypewriter units during the 3-year period immediately after initial system operation. The CSN utilizes control equipment purchased by WU from ITT and provides direct point-to-point communications through the use of relatively simple exchange offices. When transmission is ended, the circuit path is broken much the same as when a telephone receiver is hung up.

The teletypewriters being furnished by WU for the ARS are Teletype Corporation Model 28, 33, and 35. Models 28 and 35 are designed €or heavy-duty operation and Model 33 is designed for light-duty operation. WU plans to install the Model 33 at most subscriber locations.

GSA has estimated that lease payments for the CSN will total about $45.3 million during the first 5 full years of operation. Of the total cost estimated by GSA, about $13.2 million applies to lease payments and installation charges for the teletypewriters.

The three MSCs of the ARS allow messages to be received, delayed, and retransmitted at a later time under the control of a Univac 418-I processor system. In conjunction with the CSN, the MSCs are to transmit multiple-address messages, to provide a means whereby noncompatible subscribers of the CSN can exchange traffic, to provide storage, and to provide re-file services for messages to other networks. The three MSCs are being leased on a fixed-price basis and are not subject to the usual FCC tariff approvals.

WU has furnished all new equipment at the three MSCs, including three Univac 418-I processing units with related communications peripherals housed in three special purpose structures. These structures are located at Mt. Aukum, California; Berwick, Kansas; and Romney, West Virginia. Equipment and housing were obtained by WU under separate subcontracts. The total WU leasing charge for the three MSCs for the 5-year term of the ARS contract will be about $5.3 million.

Bureau of the Budget (BOB) Circular No, A-76 provides current guidelines and procedures to be applied by executive agencies in determining whether commercial sources or Government facilities are to be used to secure products or services for Government use. The guidelines in the circular are in furtherance of the Government's general policy of relying on the private enterprise system to supply its needs, and the circular supersedes BOB Bulletin 60-2 which was in effect at the time of the contract negotiations with WU. Although Circular A-76 restated the guidelines and procedures to be followed by executive agencies, the BOB does not consider it to be a substantial change in policy.

The circular provides that under certain conditions the Government may provide a commercial or industrial product or service for its own use. These conditions are listed as: (1) procurement from commercial sources will disrupt or materially delay an agency's program, (2) combat support, personnel retraining, or mobilization readiness requires performance by Government personnel, (3) a satisfactory commercial source is not available at the time the products or services are needed, (4) the product or service is available from another Federal agency, or (5) procurement from commercial sources will result in higher costs to the Government.

With regard to item 5, the circular provides that ordinarily a Government commercial activity should not be approved on the basis of economy unless the cost will be at least 10 percent less than the cost of obtaining the product or service from a commercial source.

GSA began making leasing payments in June 1966 with the first payment retroactive to February 14, 1966, the effective date of that part of WU's Domestic Leased Facility Service Tariff (Tariff FCC No. 237) applicable to the ARS.

A listing of the principal officials of GSA responsible for the administration of the activities discussed in this report is shown in appendix IV.

FINDING AND RECOMMENDATIONS

NEED TO OBTAIN AND FULLY EVALUATE THE COSTS OF ALTERNATIVE METHODS OF ACQUIRING TELETYPEWRITERS AND RELATED MAINTENANCE

Our review showed that responsible GSA officials did not completely evaluate the relative financial advantages of alternative methods of acquiring teletypewriters and related maintenance for the ARS because they believed that the results of a cost comparison would not have sufficiently overcome policy and other noncost considerations.

We believe that, if GSA had obtained and evaluated the costs of alternative methods of acquiring the teletypewriters and related maintenance, it would have found that there were significant cost differences between the various methods available. In our opinion, such recognition was prerequisite to the decisionmaking process and to the obtaining of the teletypewriters at the lowest possible cost to the Government.

Our review showed also that the terms of Tariff FCC No. 237 for the ARS, which became effective February 14, 1966, restricted the Government to leasing ARS teletypewriters, whereas other users generally had the option of furnishing their own teletypewriters. Because the ARS tariff goes beyond the contract period and restricts the Government to leasing after that period, we believe that it is not in the best interest of the Government.

In our opinion, GSA would be in a better position, when the 5-year contract expires, to ensure that the teletypewriters and related maintenance are acquired by the most economical method, all factors considered, if the restrictive provisions of the ARS tariff were eliminated, On the basis of current tariff rates, we estimate that, after the 5-year contract expires, acquisition by one of the alternative methods discussed in this report or negotiation of a new leasing arrangement at a cost more comparable with the costs of the alternatives could result in cost reductions ranging from $2.4 million to $5 million over the remaining useful life of the teletypewriters.

Inadequate consideration of the costs of alternative methods of acquiring teletypewriters and related maintenance

Our review showed that responsible GSA officials did not completely evaluate the relative financial advantages of alternative methods of acquiring ARS teletypewriters and related maintenance. This was consistent with GSA's historical practice of obtaining communications equipment almost exclusively through leased procurement.

We noted, however, that, subsequent to awarding the ARS contract, GSA entered into a separate agreement with the Atomic Energy Commission (AEC) to purchase, install, and maintain 133 teletypewriters and associated security components. The option to use Government-owned equipment was available under section 4.18(c) of WU's existing Domestic Leased Facility Service Tariff (Tariff FCC No. 237). This section provided that the civil agencies may at their discretion interconnect Government owned and maintained cryptographic or coding equipment with WU circuitry, so long as the equipment did not interfere with WU network operations.

We reviewed GSA correspondence pertaining to the agreement between GSA and AEC and found that, in addition to considerations of security, consideration had been given to the relative financial advantages of two alternative methods of supply: (1) leasing the equipment from WU under ARS tariff sates and (2) purchasing the equipment and maintaining it under existing GSA service programs.

In a letter dated May 24, 1965, the Assistant Commissioner for Communications,. GSA, made the following statement to the Assistant Director €or Logistics, AEC, indicating GSA's agreement with AEC on the desirability of purchasing teletypewriters and related cryptographic equipment (KW7 units) for AEC's use in the ARS.

> "We have analyzed the over-all cost to AEC that would apply to the procurement of teletypewriter/KW7 configurations on a lease basis as compared to a purchase arrangement. From this analysis, it is evident that it will be to the advantage of AEC to accept the teletypewriters

in addition to the KW7's on a Government purchase basis, instead of on a lease arrangement."

The GSA cost analysis supporting this statement revealed that about 25 percent of the costs that would be incurred by leasing the teletypewriters from WU could be eliminated if AEC used Government-purchased teletypewriters and related cryptographic equipment.

We asked a responsible GSA official if GSA had considered purchasing ARS teletypewriters designated for use by major agency subscribers, In reply we were told that, during its discussions with WU on tariff terms and pricing, GSA had expressed an interest in buying certain teletypewriters, but that it had done so only in an effort to obtain lower leasing charges. Limited price concessions did result from these discussions.

There was no information in the GSA files and records made available to us, however, which showed that any effort had been made, either at the time of the ARS contract negotiations or during GSA's review of WU's proposed tariff for the ARS (November 1965 to February 1966), to determine the relative financial advantages of alternative methods of acquiring ARS teletypewriters and related maintenance. At a meeting on November 30, 1966, we were informed by GSA officials that a lease/purchase cost comparison had not been made because they believed that the results of such a comparison would not be sufficient to overcome policy and other noncost considerations,

Also, we noted that WU's filed ARS tariff included terms that restricted the Government to leasing all ARS teletypewriters from the company, except those used in connection with cryptographic equipment. Section 20.3(b) of WU's Tariff FCC No. 237, effective February 14, 1966, provides that:

> "All teleprinter [teletypewriter] station equipment used in connection with narrow-band channels in ARS service shall be furnished by the Telegraph Company, except cryptographic or coding equipment ***."

In contrast, section 5.1(a) of Tariff FCC No. 237, which governs teletypewriter service to other users and the press, provides for the use of customer-furnished teletypewriters without restriction. Section 5.1(a) provides that:

> "This service contemplates communication on channel facilities furnished by the Telegraph Company, by means of teleprinter equipment furnished either by the Telegraph Company or by the customer."

Also, several other sections of the tariff provide for the use of either customer-furnished or carrier-furnished terminal equipment.

Because section 5.1(a) provides other customers generally with the option of furnishing their own teletypewriters, we believe that section 20.3(b) places an undue restriction on the civil agencies of the Government.

We were informed by a public utilities specialist of the GSA Rates and Tariffs Division that GSA had not contested the restrictive provision of the ARS tariff regulations because responsible agency officials believed it to be relatively harmless to the Government's interests. We believe, however, that GSA's agreeing to the tariff, which goes beyond the contract period and restricts the Government to leasing after that period, was not in the best interest of the Government.

Teletypewriters subject to alternative methods of acquisition

Our analysis of the cost of acquiring teletypewriters for the ARS was limited to those units which GSA was then leasing or planning to lease and which GSA could have acquired by alternative methods.

In February 1966, when the ARS began operation, GSA plans indicated that 1,901 teletypewriters would be needed to meet initial subscriber requirements. The plans also anticipated system growth during the 5-year contract period, which would reach a peak of 4,080 teletypewriters in use by July 1969. The following schedule summarizes the initial equipment and the additions which GSA plans indicated would be required to meet ARS needs:

	Number of teletypewriters
ARS subscribers:	
General Services Administration	297
Veterans Administration	330
Atomic Energy Commission	133
Agricultural Stabilization and Conservation Service, Department of Agriculture	98
Social Security Administration	744
Federal Reserve Board	299
	1,901
Planned unit additions during the 5-year contract period	2,179
ARS subscriber units anticipated at the end of the 5-year contract period	4,080

For purposes of our cost comparison, we reduced the 1,901 teletypewriters initially included in the system to eliminate 133 units that had subsequently been purchased for AEC and 59 units that were associated with GSA services provided at WU offices rather than on Government premises. We also eliminated 98 teletypewriters from the 2,179 units included in GSA's expansion plans because we were informed that GSA probably would not be leasing these units during the 5-year contract period. As a result, our cost comparison was based on consideration of 1,709 teletypewriters to be furnished for use of the initial subscribers and 2,081 teletypewriters to be added during the expansion period, or a total of 3,790 units.

GSA's more recent estimates show that the number of teletypewriters needed to meet agency requirements through fiscal year 1971 will be somewhat less than GSA originally planned. In this regard, the dollar difference shown by our comparisons would be affected to the extent that agency requirements may differ from the planned number of units, but the percentage of difference in cost between the methods compared should remain the same,

Comparison of the costs of alternative methods of acquiring teletypewriters and related maintenance

For the purpose of our review, we estimated the cost of purchasing the teletypewriters if maintenance were performed by GSA and compared the results with the cost of leasing the teletypewriters from WU at the ARS tariff rates which became effective February 14, 1966.

In estimating the cost of purchasing teletypewriters, we used manufacturers' standard prices for new teletypewriters and included cost factors for spare equipment, freight-in, installation, and certain other direct expenses. We also included interest on these costs, using the average rate on long-term Treasury bonds for November 1967. These costs were distributed over the 8-1/2-year weighted average useful life of the teletypewriters, which we estimated on the basis of information furnished by GSA and WU.

Maintenance and operating cost estimates were based on judgments provided by GSA technical personnel then engaged in teletypewriter maintenance. Included in these estimates were cost factors for preventive, remedial, and overhaul maintenance; annual spare-parts consumption; leased floor space for maintenance depots; and administration--all predicated on an expansion of the existing GSA teletypewriter maintenance program.

We included, also, an amount for Federal income tax revenues which would normally be lost under the purchase alternative.[1]

Leasing costs were estimated by projecting rental prices for ARS teletypewriters prescribed in section 20.5(d) of Tariff FCC No, 237 and by adding administrative operating expenses on the basis of budgeted program costs, including general administration and legal services costs.

Our cost allocations between the 5-year contract period and the remaining useful life of the teletypewriters were based on GSA's plans for phasing in new stations. Because the 3,790 units were to be phased in over a period of 3-1/2 years, our cost allocations were based on expected periods of usage of about 185,000 equivalent machine months during the 5-year contract period and of about 202,000 equivalent machine months during the remaining useful life of the teletypewriters.

The following schedule summarizes our estimate of the cost of the alternative methods of acquiring the teletypewriters and related maintenance and the difference in cost during the 5-year contract period and during the remaining useful life of the teletypewriters.

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[1] Our review showed that WU had no Federal income tax liability for the past several years.

	Number of teletype-writers	Cost to lease	Cost to pur-chase	Differ-ence
		(millions)		
Cost during the 5-year ARS contract period:				
Initial units	1,709	$ 6.60	$ 5.65	$0.95
Units to be added in system expan-sion	2,081	5.49	4.67	0.82
Total	3,790	12.09	10.32	1.77
Cost during the remain-ing equipment life	3,790	13.08	10.71	2.37
Total cost dur-ing the 8-1/2-year equipment useful life	3,790	$25.17	$21.03	$4.14

A schedule showing the results of our comparison, with explanation of certain factors, is included in this report as the exhibit.

All cost factors included in our comparison were determined in accordance with policy guidelines set forth in BOB Circular No. A-76, pertaining to the acquisition of commercial or industrial products and services for Government use.[1]

[1] On August 30, 1967, Circular A-76 was revised to clarify some of its provisions and to lessen the burden of work by the agencies in implementing the provisions. The revisions have no bearing on the cost factors considered or the position taken in this report.

Although GSA was subject to the policy guidelines contained in BOB Bulletin 60-2 when the ARS contract was being negotiated, the results would have been substantially the same because the cost items required to be considered under both the bulletin and the circular were essentially the same.

We used BOB Circular No. A-76 because it was the instruction in force at the time of our review and as such was more appropriate for estimating the savings attainable in the future.

As stated earlier, we estimated the useful life of the teletypewriters on the basis of information furnished by GSA and WU. Other information obtained by us during the review showed that the teletypewriters could be expected to last substantially longer than 8-1/2 years. To the extent that this would occur, the cost difference shown by our comparisons would be increased.

Agency and contractor comments

Written comments on our finding were furnished by GSA and WU and are included as appendixes II and III of the report.

In its comments dated December 2, 1966, GSA informed us that it was reexamining, from an economical standpoint, the relative advantages and disadvantages of Government ownership and maintenance of ARS teletypewriters on the basis of the policy set forth in BOB Circular No. A-76, GSA stated that a cost difference in favor of purchase had been shown by its preliminary estimates but stated also that the cost advantage would be offset by a need for additional funds in the Federal Telecommunications Fund; by contractual, tariff, and operational difficulties; by a procurement lead time of at least 9 months; by problems such as availability, recruiting, and training of personnel; by acquisition and preparation of depot space; and by time consumed in phasing in such an operation.

In its comments dated November 22, 1966, WU raised questions regarding the maintenance support provided for in our cost comparison and the value of the "total systems services" which it provided.

We have considered the GSA and WU comments and remain of the opinion that the above factors would not significantly affect the cost advantages under the purchase alternative. Our detailed evaluation is included as appendix I.

In November 1967 GSA requested another opportunity to review our draft report. Additional comments were furnished on February 8, 1968, and are included in appendix 11.

In its February 1968 comments, GSA stated that it agreed with our proposals that the Administrator (1) request WU to initiate action with the FCC to eliminate the tariff provision that prohibited the use of Government-furnished teletypwriters, (2) if WU did not act, institute proceedings before the FCC to have the provision eliminated, and (3) in future communications procurements, give consideration to the alternative means of obtaining the services and to the relative costs thereof so that the means most favorable to the Government may be determined. However, GSA emphasized certain matters with regard to its position; namely, that Government purchase and maintenance of the teletypewriters was not a practically available option because, in its opinion, a single contractor was, from an acceptable service standpoint, essential to placing responsibility for system maintenance and operation.

We made a further evaluation of the matter, and, because of GSA's adamant position with regard to its inability to organize and operate an expanded in-house maintenance program, we explored the option of purchasing with contract maintenance. This exploration reinforced our view that GSA should give serious consideration to all available methods to ensure that the teletypewriters and related maintenance were acquired by the most economical method, all factors considered,

During our further evaluation, we considered the following factors.

1. Although the ARS was being furnished and maintained by WU, the MSCs and terminal equipment were being operated by Government personnel.

2. The ARS contract, Addendum II, Specifications for Program Production Requirements for the Message Switching Centers, sections 6.1, 6.3.5, and 6.5, respectively, provided, among other things, that:

   (a) The contractor shall be responsible for supplying a complete set of diagnostic tools to allow the detection of malfunctioning or weak components that will result in system degradation if left unchecked. The diagnostic tools shall provide for determining the status and operability of communication line termination gear including the ability to test the system from the subscriber [teletypewriter] to the processor [MSC] or from the processor to the subscriber.

(b) The contractor will furnish operator's manuals which will serve, among other things, as a guide to the computer operator for responding to trouble and/or error indications.

(c) The contractor shall propose a schedule and methodology that will result in a smooth turnover of software maintenance responsibility from contractor personnel to an in-house programming staff that the Government will build up in concert with a jointly derived contractor-Government schedule. Further, each MSC is to be staffed with one programmer to install modifications and resolve emergencies and one of the three MSCs is to be equipped and staffed to assume total responsibility for software maintenance, modification, and development.

3. We were informed that certain equipment, which was purchased by GSA and located in the MSCs to handle Social Security Administration and Veterans Administration requirements, was being maintained by the manufacturer and, therefore, was not part of WU's responsibility.

4. The CSN was to be provided with trouble indicator panels and an alarm system designed to alert maintenance personnel to the source of trouble.

5. GSA Order TCS 7120.7A, dated March 18, 1968, provided, with respect to trouble reporting, that, if the station had two or more machines, the operator should make a self-test call to determine if the trouble was within the station equipment or the network circuitry.

6. During discussions with both GSA and WU technical personnel. who were actively engaged in maintenance, we were informed that identification of problem areas was a relatively simple matter and could be done rapidly.

7. A GSA official told us that GSA had had problems with the ARS but that it was a good system. One of

the problems which he mentioned was a parity error problem with the Model 33 teletypewriter. He said that this had required a change in the keyboard which was being done by the manufacturer under warranty but, because the equipment was leased, it was a WU and manufacturer problem, not GSA's.

8. The GSA official told us that, in a normal trouble situation, WU personnel would first check to see if (a) the teletypewriter was plugged in or (b) the paper was low because the machines had a low-paper cutoff. If neither of these was the trouble, a test message would be sent which would disclose whether the trouble was in the teletypewriter or in the circuitry.

On the basis of the foregoing, we concluded that (1) the controls built into the system would eliminate a blind search for the source in most trouble situations and, by using routine test procedures, maintenance personnel could rapidly make the determination of whether problems lay in the circuitry or the terminal' equipment, (2) outages of the MSCs and related software would be critical to the overall operation of the ARS, whereas outages of individual teletypewriters would not, (3) because the system was Government operated and managed, there would be a need for a certain amount of coordination between the parties involved regardless of how the teletypewriters and related maintenance were acquired, and (4) the Government was already obtaining something less than "total systems service."

As a further check on the reasonableness of our conclusions, we contacted several other organizations to obtain information regarding the identification of sources of trouble where terminals were owned and circuitry was leased, We were told that the separation of responsibility had not caused any problems. Although the experience of others does not relate specifically to the ARS, we believe that it gives an indication of what might be expected,

An official of one organization which had a nationwide teletypewriter maintenance capability informed us that several years ago the organization's maintainers were wasting their time on six or seven out of every hundred service calls, because the trouble to which they responded was found to be in the circuitry, He told us that their then-current experience showed, however, that about one out of every hundred service calls was a waste of effort. He told us also that most trouble coordination problems could be eliminated by lights which indicated where the trouble lay.

As stated on page 15, for the purpose of this review, we estimated the cost of purchasing under an in-house maintenance arrangement and compared the results with the cost of leasing under the ARS tariff. However, we believe that this is only one of several alternatives available to GSA for obtaining teletypewriters and related maintenance.

For example, we made an additional estimate of the cost of purchasing, using the rates of a nationwide commercial service organization as a basis for calculating the cost of maintenance, and compared the results with the cost of leasing the teletypewriters under ARS tariffs. This comparison was based on information which would have been available to GSA at the time of its negotiations with WU and at the time it commented on our draft report.

Using tentative contract maintenance rates--which would have been available at the time of negotiations--as a basis for calculating the cost of contract maintenance for the actual period of time that, according to GSA plans, all teletypewriters were to be used during the 5-year contract period, we estimated that the total cost of purchasing under this arrangement would have been about $2 million, or about 16.5 percent, less than the cost of leasing during the 5-year contract period.

In April 1968, we obtained the service company's actual single-unit maintenance rates for the same type of teletypewriters as were being used in the ARS because we believed that these rates would more nearly reflect the cost of purchasing with contract maintenance after the 5-year contract period. On this basis we estimated that, over the remaining useful life of the ARS teletypewriters, the cost of purchasing with contract maintenance would be over $5 million, or 38 percent, less than the cost of leasing the teletypewriters. Over the full 8-1/2-year weighted average useful life of the teletypewriters, this difference would be about $9.2 million.

Conclusions

If GSA had obtained information on the costs of alternative methods of acquiring teletypewriters for use in the ARS and had made a cost comparison in accordance with the BOB criteria in effect at the time of negotiations, it would have found that there were significant cost differences between the various methods available. We believe that such recognition was then, and will be in the future, prerequisite to the decisionmaking process and to obtaining ARS teletypewriters at the lowest possible cost to the Government whether by (1) leasing from WU, (2) purchasing and maintaining the teletypewriters under a GSA service program, (3) purchasing the teletypewriters and obtaining maintenance from a service company, or (4) purchasing the teletypewriters and obtaining maintenance from WU.

It is our opinion that, if the restrictive provisions of section 20.3(b) remain in the tariff, GSA will be in a weak negotiating position when the contract is renewed because it will have no choice but to continue leasing the teletypewriters. We believe that, under such circumstances, it will be difficult to obtain favorable prices.

Recommendations

We recommend that, prior to the expiration of the 5-year contract period, the Administrator of General Services request WU to initiate action with FCC to eliminate the tariff provision that prohibits the use of Government-furnished teletypewriters by GSA and other civil agencies. We believe that this action is necessary because of the inequity to the Government and the additional cost that could be incurred by the continued leasing of ARS teletypewriters. We recommend also that, if WU does not act, the Administrator institute proceedings before the FCC to have the provision eliminated.

Successful elimination of the restrictive section of the tariff prior to the expiration of the current contract would enable the Administrator to select the most economical alternative. The alternatives that could then be considered include (1) purchasing the existing teletypewriters, (2) continued leasing of the teletypewriters from WU, or (3) purchasing new units from equipment manufacturers to replace the teletypewriters leased from WU at the ARS subscriber locations. In making this determination, GSA should consider factors such as the condition of the existing units, the relative capability of new equipment that may be available, and the relative costs of the alternatives.

We recommend further that the Administrator, in future communications procurements, give Consideration to alternative means of obtaining the services and to the relative costs thereof so that the means most favorable to the Government may be determined.

SCOPE OF REVIEW

Our review included examining into the comparative costs of procuring teletypewriter equipment by lease or by purchase for the circuit switching network portion of the Advanced Record System.

We reviewed the ARS contract and supporting files in the GSA Central Office, Washington, D.C., and supporting material related to prime contractor costs and subcontracts obtained from The Western Union Telegraph Company. We also visited the Romney, West Virginia, MSC site. In addi'tion, we had discussions with representatives of GSA, FCC, and The Western Union Telegraph Company during the course of our review.

<u>EXHIBIT</u>

COMPARISON OF COSTS OF LEASE/PURCHASE OF TELETYPEWRITER EQUIPMENT AND EXPLANATION OF CERTAIN FACTORS CONSIDERED IN MAKING COMPARISON

Lease	5-year contract period	Remaining useful life	Total useful life (8-1/2 years)
Leasing charges	$11,708,414	$12,877,309	$24,585,723
Equipment installation	189,500	-	189,500
Administrative operating expense	190,366	206,037	396,403
Total cost to lease 3,790 teletypewriter units	12,088,280	13,083,346	25,171,626
Purchase			
Amortized direct costs:			
Equipment cost	2,222,055	2,449,417	4,671,472
Freight-in	10,873	11,896	22,769
Installation	83,420	91,314	174,734
Shop test equipment	128,776	140,902	269,678
Personnel training	31,899	34,902	66,801
Maintenance and operating expense	5,845,116	6,395,288	12,240,404
Public message refile leasing	32,400	22,680	55,080
Administrative operating expense	133,673	146,342	280,015
Interest on direct costs	926,510	418,589	1,345,099
Federal income tax foregone	908,225	999,811	1,908,036
Total cost to purchase 3,790 teletypewriter units	10,322,947	10,711,141	21,034,088
Cost difference	$ 1,765,333	$ 2.372.205	$ 4.137.538

EXPLANATION OF CERTAIN FACTORS CONSIDERED IN MAKING COMPARISON

Our comparison was made in accordance with the costing procedures prescribed in Bureau of the Budget (BOB) Circular No. A-76.[1] The factors considered in our computations

[1] On August 30, 1967, Circular A-76 was revised to clarify some of its provisions and to lessen the burden of work by the agencies in implementing the provisions. The revisions would have no bearing on the cost factors considered or the position taken in this report.

of the lease and purchase costs for the Advanced Record System (ARS) teletypewriter station equipment are described in the following sections.

Leasing tariff

The Western Union Telegraph Company (WU) is subject to regulation by the Federal Communications Commission (FCC) as a common carrier engaged in providing interstate wire-telegraph services, FCC's responsibility and authority is set forth in The Communications Act of 1934, as amended (47 U.S.C. 151). Any party complaining of anything done or omitted to be done by any common carrier subject to the act, may apply to the FCC by petition.

The tariff rates filed by WU for ARS teletypewriter equipment were published by the FCC to be effective on February 14, 1966, under Tariff FCC No. 237, In developing leasing charges for ARS teletypewriter equipment, WU included cost factors for the recovery through depreciation of its initial investment (direct costs), nonrecurring installation charges, maintenance service, and certain overhead charges. It also included a factor for profit and income tax of 16 percent on the sum of average depreciated investment and supporting plant (rate base).

We used the monthly rental prices for ARS teletypewriters prescribed in section 20.5(d) of Tariff FCC No, 237 as a basis for our computation of the Government's leasing cost for the original 1,709 units of equipment included in our comparison. This cost was projected over the 5-year ARS contract period and over the 8-1/2-year weighted average useful life of teletypewriters €or comparison with the cost of purchasing.

To estimate the cost of leasing the 2,081 units to be added during the planned ARS expansion, we averaged the cost of the 1,709 leased units provided original subscribers. From this calculation, we derived an average monthly unit cost of $63.60 which was used to compute the leasing cost of the additional. subscriber units, Government purchase

Our calculation of the equipment cost for ***ARS*** teletypewriters was based on manufacturers' standard prices. Estimated maintenance and operating expense and installation cost for Government-owned equipment were based on a plan for possible expansion of the existing **GSA** teletypewriter service facilities. We determined these costs for the original 1,709 teletypewriters included in our review comparison, We then used these costs to determine purchase cost for the 2,081 units to be added 'during the planned expansion of the ARS.

1. Direct costs--Within this category, we grouped costs associated with the initial cash outlay that would have been required of GSA for ARS teletypewriter units, standard assembly conponents, freight-in, installation expenditures, shop test equipment, and personnel training. We amortized these costs over the 8-1/2-year weighted average useful life of the teletypewriters, which we estimated on the basis of information furnished by **GSA** and **WU.**

2. Maintenance and operating expense--Existing **GSA** facilities for servicing teletypewriters, radios, and cryptographic equipment consist of four maintenance depots. The depots are located at San Francisco, California; Kansas City, Missouri; Washington, D.C.; and Albuquerque, New Mexico. We were advised by **GSA** personnel responsible for existing maintenance operations that additional facilities could be provided by adding six field maintenance depots at new locations and by increasing staffs and supplies at existing locations. The prospective additional depot locations suggested by the **GSA** personnel were Boston, Massachusetts; Atlanta, Georgia; Chicago, Illinois; Dallas, Texas; Denver, Colorado; and Seattle, Washington.

We selected the proposed Boston and Dallas field maintenance depots for further analysis in order to develop cost data upon which to base our estimate of the nationwide ***ARS*** installation and maintenance costs. The proposed Boston and Dallas depots would service approximately 19 percent of the leased ARS teletypewriters included in our comparison. Our maintenance and operating expense and installation cost estimates for these depots included all items considered necessary under the circumstances to conform with the current BOB Circular No, A-76. GSA officials provided us with the technical judgments necessary to estimate required Government service costs for preventive, remedial, and overhaul maintenance and for installation,

In our analysis of maintenance cost, we also included the administrative costs which, according to GSA officials, would be required to support the added maintenance program services for ARS subscribers.

3. Teletypewriters to be added in ARS expansion--We averaged the direct costs and the maintenance cost on the original 1,709 units of equipment included in our review and used the resulting cost factor as a basis for estimating the cost to the Government for purchasing and maintaining the 2,081 units to be added during the planned ARS expansion, For the original 1,709 units, we derived'an average monthly unit cost of $45.13 which we used to estimate the Government's direct and maintenance costs for added subscriber units.

4. **Public message refiles--The ARS contract provides** that teletypewriters at 15 WU offices designated for message-refiling services will be available to the Government at no charge. (Message refiling is the transfer of messages to and from commercially operated systems or other Government-operated systems.) It is our opinion that GSA would have to pay the required tariff leasing charges under the purchasing alternative in order to obtain WU refiling service, because the price concessions made by WU would be available only under the present ARS leasing alternative. Therefore, we added the full cost of leasing 15 WU refile units to the purchase comparative.

5. GSA administrative operating expense--In both the lease and purchase comparatives, we included the cost of GSA general administration and legal services. Such cost would comprise 1.6 percent of the budgeted program costs, according to prescribed GSA administrative procedures.

6. Interest--In our calculations, we used the average interest rate on long-term Treasury bonds for November 1967

to compute interest on direct costs to the Government under the purchase alternative.

7. Federal income tax--BOB Circular No. **A-76** provides that, in determining the cost of obtaining products or services from Government activities, consideration be given to loss of Federal tax revenues and states that applicable regulatory agencies could provide an appropriate basis for estimating taxes in regulated industries.

We contacted FCC regarding the breakdown of the 16-percent factor for profit and income tax, which is used by WU in its rate schedules. (See p. 30.) We were informed that the 16 percent included a factor of 6 percent for Federal income tax. Therefore, we used 6 percent of the rate base, as allowed by FCC, to compute the amount of Federal income tax revenues which would be lost under the purchase alternative.

Other considerations

1. ARS common-user equipment--GSA was leasing *44* teletypewriters at WU offices to provide message-sending services in various cities for Federal agencies that did not have teletypewriters at their immediate disposal. Because these units were located at WU offices, it would probably have been necessary to continue leasing them. Therefore, in our comparison of purchasing and leasing, we excluded these WU common-user units because their costs would have been comparable under the alternatives.

2. Station arrangement charges--Provision for these charges was included in WU tariffs to allow the common carrier to be reimbursed for equipment which had been added to company- or customer-owned teletypewriters to eliminate network interference caused by the subscriber element. Because these leasing ccsts would be identical under the alternatives, we excluded them from our comparison.

3. Special arrangement charges for Federal Reserve Board teletypewriters--GSA was paying additional leasing charges for special equipment arrangements provided by WU on 35 teletypewriter units for the Federal Reserve Board.

Because sufficient information was not available on the purchase alternatives for these special arrangements, we excluded the related costs from our comparison of the lease and purchase alternatives.

APPENDIXES

GENERAL ACCOUNTING OFFICE EVALUATION OF COMMENTS SUBMITTED BY GENERAL SERVICES ADMINISTRATION AND THE WESTERN UNION TELEGRAPH COMPANY

In a letter dated December 2, 1966, transmitting GSA's comments on our draft report, the Administrator of General Services stated that a detailed calculation of the relative estimated costs of purchasing or leasing teletypewriters had been considered and that the lease decision had been properly based on policy and noncost considerations because reliable cost data was unavailable.

The General Services Administration (GSA) stated that, in view of the modification of Government policy, set forth in Bureau of the Budget (BOB) Circular No. A-76, which permits a flexibility in determinations greater than that prevailing under BOB Bulletin 60-2, it was reexamining, from an economical standpoint, the relative advantages and disadvantages of Government ownership and maintenance of ARS teletypewriters. GSA stated also that its preliminary estimates had shown a cost difference in favor of purchase. GSA indicated, however, that the cost advantage would be offset by a need for additional funds in the Federal Telecommunications Fund; by contractual, tariff, and operational difficulties; by a procurement lead time of at least 9 months; by problems such as availability, recruiting, and training of personnel; by acquisition and preparation of depot space; and by time consumed in phasing in such an operation.

In our opinion, the above factors would not significantly affect the cost advantages under the purchase alternative,, Furthermore, with proper planning, such factors could be eliminated or at least minimized. The above considerations are presented in detail and evaluated on pages 40 to 45.

In January 1967, GSA furnished us with its completed lease/purchase cost analyses which showed that, based on 8 full years' usage of 4,000 teletypewriters and on various time and distance factors for the provision of maintenance, the savings ranged from 30 percent, or $8.1 million, to 39 percent, or $10.5 million. However, the GSA comparisons gave no recognition to Federal income tax lost,

In a letter dated November 22, 1966, WU commented on our draft report and raised questions regarding the maintenance support provided for in our calculations. WU commented also on the value of the "total systems services" provided by it.

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With regard to policy considerations GSA stated:

> "The evaluating differences under Bulletin 60-2 were much higher from a cost standpoint ('substantial and disproportionately large') than under Circular A-76 (10 percent). Therefore, we do not agree that the evaluation results under BOB Bulletin 60-2 would be 'substantially the same under Circular A-76.' The '10 percent less' criteria in favor of commercial activity of BOB Circular A-76 is far more flexible in favor of Government ownership than 'substantial and disproportionately large' under Bulletin 60-2."

Although there may be differences in interpretation of the meaning of the words "substantial" and "disproportionate," we believe that the cost differential in favor of purchasing the teletypewriters, as shown in this report, was of such magnitude. Furthermore, while the criteria set forth in BOB Circular No. A-76 make more explicit the factors to be considered, we believe that it is not "far more flexible in favor of Government ownership."

Testimony given by Mr. Phillip S. Hughes, Deputy Director, Bureau of the Budget, before the Subcommittee on Federal Procurement and Regulation of the Joint Economic Committee, Congress of the United States, in March 1966 supports our position. In his testimony, the Deputy Director stated that BOB Circular No. A-76 restated the guidelines and procedures to be applied by executive agencies and that there was no substantial change in policy. He also said:

> "The bulletin [60-2] provided that Government activities should be avoided unless costs involved in the use of commercial sources would be 'disproportionately higher.' Since the meaning of this term was not entirely clear, the Circular [A-76] provides for a more definite cost standard by indicating that Government activities should not be initiated unless costs will be at least 10 percent less than would be incurred if the product or service were obtained from commercial sources."

On the basis of the foregoing, we believe that, although GSA was subject to the policy guidelines contained in BOB Bulletin 60-2 which was in effect while the ARS contract was being negotiated, the results under the bulletin would have been substantially the same as under Circular A-76 because the cost items required to be considered under both the bulletin and the circular were essentially the same.

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WU stated, in commenting on the maintenance support provided for in our calculations, that it believed that we should reexamine our estimates. WU emphasized that it maintained a stock of 500 backup machines to provide for rotation, plus spare units distributed throughout the field, and stated that we had failed to consider these factors. WU stated also that the 10 GSA service depots suggested in our report could not provide maintenance support as promptly or as economically as WU could.

Our cost estimates of purchasing and maintaining the teletypewriters, as summarized on page 17 and detailed in the exhibit, were based on (1) equipment costs that included a 10-percent factor for spare equipment--a factor which was the same as that used by WU in its rate development schedules--and (2) maintenance costs that included a provision for annual spare-parts consumption based on information and technical judgments provided by GSA technical personnel. On the basis of these judgments and manufacturers' guidelines, we believe that our estimated maintenance costs included adequate factors for preventive, remedial, and overhaul maintenance on the 3,790 machines considered in our analysis.

Our cost estimates were predicated on a depot arrangement which would permit maintenance personnel to travel to the teletypewriter site, make repairs, and return to the depot in an 8-hour working day. We note in this respect that the reasonableness of this arrangement has been corroborated by analyses performed by GSA. In a memorandum dated December 19, 1966, to the Deputy Assistant Commissioner, Office of Communications, GSA, the Director of the Operations Control Division commented on the GSA lease/purchase analyses which had been made in October and December 1966 and stated that a GSA maintenance organization based on a maximum response time of either 4 to 8 hours or 3 to 6 hours was considered workable and reasonable from both an operational and/or a cost viewpoint. He also observed that GSA's overall experience with the various commercial carriers did not substantiate their claims of 1/2- to 1-hour response time.

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In commenting on the lack of a lease/purchase analysis, GSA stated that its officials had not precisely calculated the relative cost advantages of purchasing or leasing teletypewriters since they could not obtain reliable cost data and uncertain cost considerations were insufficient to overcome policy and other noncost considerations. GSA stated also that an evaluation of the relative financial advantages of purchasing or leasing had been considered to a point where it was decided that additional evaluation would be neither required nor productive for several limiting reasons, among which were:

1. Exceptions to the prevailing Government policy in 1963-64, set forth in BOB Bulletin 60-2, could be made only on the basis of a finding that there were "compelling reasons" for Government provision of a product or service. The "compelling reasons"

enumerated in the bulletin provided insufficient latitude for justification of Government provision of such service to permit an exception to Government-wide policy.

We believe that, if GSA had made a lease/purchase analysis, the analysis would have shown a decided advantage in favor of Government ownership and would have provided justification for utilizing Government-furnished station equipment in the ARS.

2. The Model 33 (ARS) had never been used in a nationwide network, and adequate support, in terms of operating experience, to justify the investment was not available.

We believe that, although information with regard to actual operating experience for the newly designed Model 33 teletypewriter might not have been available, the manufacturer would have had information which GSA could have obtained for consideration, In our opinion, the lack of actual operating experience should not have precluded the Government's purchasing this equipment.

3. GSA could not have implemented the ARS on the schedule then contemplated under a concept of Government ownership of the terminal devices. In addition to the exception to Government policy, it would have been necessary to negotiate with the contractor to use Government-owned equipment. GSA has always advocated the right of direct interconnection of Government-owned equipment with equipment of the common carrier, but the historical and traditional pattern of the common carriers, supported by the FCC, State regulatory bodies, and the courts, has been to deny interconnection except on the grounds of military necessity and security. Therefore, a long and protracted period of litigation would be anticipated before a final decision on such an interconnection privilege could be obtained.

In our opinion the above factors would not have significantly delayed implementation of the ARS.

We believe that proper advance planning for procurement of the ARS would have taken into consideration all major alternatives (including purchase) available to the Government. We believe also that inclusion of these alternatives in the request for quotations for the circuit switching network would have resulted in keeping negotiating time to a minimum, and that such time would have been worth the effort in terms of costs. Furthermore, we can see no reason why GSA could not have obtained the teletypewriters from the manufacturer as quickly as WU obtained them.

We cannot agree with GSA that a long and protracted period of litigation could have been anticipated before a final decision on the interconnection privilege was obtained. As discussed on page 13 of this report, the interconnection option is extended to customers generally by section 5.1(a) of Tariff FCC No. 237. We think it fair to assume that the reasonableness of equal tariff treatment for GSA would have been readily recognized by WU and other interested parties.

Also, the experience of the Department of Defense (DOD) suggests that GSA could have obtained the interconnection privilege without any problem. No restrictive provision on interconnection was inserted in the tariff with respect to AUTODIN (Automatic Digital Network), a DOD communications system which is similar in concept to the ARS. In this connection, we note that DOD has decided to purchase teletypewriters and other terminal equipment after an analysis showing that substantial economies can be realized.

4. Additional funds would have been required in the Federal Telecommunications Fund. A staff of installers-maintainers, compensated from the Fund, would have required recruitment and training in a scarce labor market.

With regard to the funding of the purchase and maintenance of ARS teletypewriters, we believe that there would not have been any real problems. The Federal Telecommunications Fund was established on July 1, 1963, pursuant to section 110 of the Federal Property and Administrative Services Act of 1949, as amended (5 U.S.C. 630g-1), which provides that:

> "There is hereby authorized to be established on the books of the Treasury, a Federal telecommunications fund, which shall be available without fiscal year limitation for expenses, including personal services, other costs, and the procurement by lease or purchase of equipment and operating facilities (including cryptographic devices) necessary for the operation of a Federal telecommunications system, to provide local and long distance voice, teletype, data, facsimile, and other communications services." (Underscoring supplied.)

This fund was capitalized at about $9.3 million, of which about $300,000 represented assets taken over from other GSA programs. We believe that an analysis of the fund by GSA at the time the ARS procurement was being made would have shown that the fund resources were adequate to meet the predictable cash requirements for ARS teletypewriters. Fund reports from fiscal year 1965 through the time of our review indicated that the fund would have been adequate for the purchase of teletypewriters.

Our review showed that at June 30, 1964, 6 months prior to the then-scheduled operational date of phase I, the net working capital position of the fund was in excess of $8 million and about $2 million was returned to the Treasury Department. Fiscal year 1965 operations resulted in a loss of about $4 million and thereby reduced the net working capital position to about $4 million. However, fiscal year 1966 operations resulted in almost complete recovery of the fiscal year 1965 loss and increased the net working capital position to about $7.5 million. Fund operations during fiscal year 1967, resulted in a small profit and the year-end working capital position was about $8 million.

The direct costs of about $5 million to acquire all 3,790 teletypewriters would have been incurred over a period of 3-1/2 years and, in our opinion, fund resources would not have been significantly burdened in any one year. GSA would have started recovering these costs as stations were placed on the system, because the revolving fund concept requires GSA to recover all costs from user agencies.

In our opinion, the recruitment and training of personnel to install and maintain the equipment would not have been an insurmountable problem and would have been worth the effort, considering the overall savings that could have been realized. In this regard, we note that GSA has had to hire personnel to install and maintain the equipment it now owns. We believe that, with proper planning, the needs of an expanded maintenance program could have been met. We believe also that the military services, as well as trade schools and private industry, could have supplied personnel having a basic background in the maintenance of such equipment. These individuals could have been given additional training after they were hired, if necessary.

During our review, we noted that the teletypewriter manufacturer operated a tuition-free school offering instruction in the maintenance of its equipment. This school is available to maintenance personnel of customers who maintain their own facilities.

5. The contract contained a provision for liquidated damages which, in the event of a Government delay [had GSA furnished the teletypewriters], could have deprived the Government of a claim for such damages or subjected it to additional liabilities for delaying the contractor.

We recognize that failure on the part of the Government to furnish teletypewriters could have had these effects. However, we believe that procurement decisions should not be made on the assumption that the Government would fail to perform or would delay its contractors. Also, the procurement of teletypewriters seemed to be a simple matter involving only a minimum risk of tardiness.

6. Availability of special signaling equipment for Government purchase and permission to install such equipment on terminals which obtained signaling impulses from sources outside the leased network would have presented serious contractual problems with the common carrier; e.g., in fixing responsibility for malfunctions in the system. Difficulty in identifying sources of trouble as between network circuitry, switching equipment, and terminal devices would have

> precluded prompt diagnostic and corrective procedures and necessitated duplication of manpower and effort as well as troublesome personnel coordination problems. GSA stated that a vivid illustration of this occurred when it was necessary to correct parity errors in the system. [Parity refers to a bit used to check the validity of information and applies to messages which are routed through the MSC processors.]

As stated on page 22 of this report, the parity problem was a design matter; therefore, it was not appropriate for GSA to consider parity errors as a maintenance problem. We were informed that, once the design matter was corrected, one could expect parity errors to occur from time to time but that the maintainers had a routine which they would follow to isolate the problem just as they would in other types of trouble. Also, after the design matter was corrected, it would be expected that only one unit of equipment at a time, not the entire system, would be affected by future parity problems. In this regard, we noted that newly installed units were to be tested through the MSC to ensure a complete absence of parity error.

We recognize that operational difficulties might arise, which, under a Government purchase arrangement, would require coordination between the parties involved. It is our understanding, however; that routine diagnostic procedures have been built into the system to help pinpoint most trouble situations and thus eliminate a blind search for the source. Moreover, the communications companies are required by tariff to provide and maintain quality circuits for their customers, regardless of whether the teletypewriters are leased or customer owned. With respect to the teletypewriters themselves, our calculation of the cost under the purchase alternative included a factor for GSA trouble maintenance. (See pp. 29 to 34.)

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GSA stated that the question of interconnection with equipment of other Companies, which would include Government-owned equipment, had been raised with WU and was answered by them on December 11, 1963. (See item 3, p. 41.) At that time WU stated that:

"In our proposal we are offering a complete service to meet your requirements. Basically it is not our intention to permit indiscriminate interconnection with either Government or other common carrier's facilities. We do not, however, have a hard and fast policy against interconnection of facilities: Rather, our decision to interconnect or not is based on the circumstances involved. You may be assured of a realistic approach to the service aspects associated with interconnection for the handling of traffic originating in or destined to other networks."

With regard to this WU position, GSA stated that:

"Special attention,is drawn to the references to 'complete service,' 'service aspects,' and the reference to interconnection with other networks. In this connection, the draft report refers *** to the fact that only two bidders had offered 'total system services.' While the ARS is comprised of several elements, those of program design, communications experience and expertise, systems management, and systems engineering were all essential elements of the total service concept sought by GSA in undertaking the ARS and the 'complete service' offered by Western Union in its response to the invitation."

WU also commented on this aspect of the finding, and our evaluations apply to both GSA and WU comments, where applicable.

We reviewed the Advanced Record Design Group Report and could find no evidence to indicate that the "total system services" concept had been a factor in advance planning for the ARS. Also, as stated in the background section of this report, GSA had issued the request for quotations for the ARS to 52 companies which it thought might be interested in making a proposal on either the entire ARS contract or merely certain parts. Of the 52 companies solicited, only two--American Telephone and Telegraph Company and WU--were common carriers who were in a position to furnish "total system services."

In our opinion, had the "total system services" concept been an overriding factor in procuring the ARS, it would have been inappropriate and unnecessary to request quotations from the remaining 50 companies.

As stated on page 45 of this report, we understand that the determination of whether problems lie in the circuitry or the terminal equipment can be rapidly ascertained using routine test procedures. We believe that, under these circumstances, there would be no extraordinary problems arising from GSA maintenance of the teletypewriters and WU maintenance of circuitry.

- - - -

GSA commented that the carrier's loss of revenue on the customer-provided portion of a system would have to be recouped through increased charges to that customer for the carrier-provided portion of the system or through increased charges to other customers. It stated that the elimination of carrier investment would not reduce major expenses but would merely require that they be recovered by higher charges for other services.

We examined WU's rate development schedules in this regard and noted that the carrier's investment had been by far the major factor in determining the rate base, which in turn had been used for determining return or income. Although purchase of the teletypewriters by GSA would eliminate WU's investment in and revenue on the teletypewriters, it would also eliminate most of WU's corresponding expenses. Therefore, the chance that revenues lost from one source would have had any significant effect on charges for other services seems remote and conjectural.

As previously stated, FCC tariffs governing WU's domestic leased facility service permit users to furnish their own teletypewriter equipment if they so elect. (See p. 13.) Therefore, it appears that FCC has in effect recognized that minor variations in rate base may occur with respect to sgecific customers, depending upon whether the customer elects to supply his own teletypewriters. We believe that, if GSA had furnished its own teletypewriters and if this action had resulted in some additional cost of service to other users, it would have been within the intent of the tariff. Under these circumstances, ordinary prudence seemingly would have required that GSA give primary consideration to Government economy in making its decision. Therefore, we believe that it should have approached this question, as would any other user, with the aim of seeking the most desirable alternative, cost and other factors considered.

- - - -

GSA pointed out that under the leasing alternative the teletypewriters used in the ARS could be canceled by the Government on 1 day's notice without termination liabilities and stated that these teletypewriters could be substituted or replaced with other types at any time if deemed advisable. GSA has stated that therefore any calculation of additional cost to the Government for leasing the teletypewriters was speculative and conjectural because it was predicated upon usage of originally installed equipment for a minimum of 5 years.

Our calculations of lease and purchase costs have been based on equipment requirements shown in GSA's long-range plans for meeting the known needs of the ARS subscribers. Therefore, these calculations were based on the best information available. We believe that the results are not speculative and conjectural.

GENERAL SERVICES ADMINISTRATION

Washington, D.C. 20405

DEC 2 1966

Mr. Irvine M, Crawford
Assistant Director
Civil Accounting Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Crawford:

Enclosed are our comments on your draft report entitled "Review of Leasing Arrangements for the Advanced Record System Communications Network, General Services Administration, " which you transmitted with your letter of October 11, 1966.

[See GAO note.]

In summary, our comments note the applicability of Bureau of the Budget Bulletin No. 60-2 during the ARS contract negotiations and the distinction between it and Bureau of the Budget Circular No. A-76 upon which the draft report appears to be predicated,

[See GAO note.]

A detailed calculation of the relative estimated costs of purchasing and leasing of teletypewriters was considered, but the lease decision was properly based on policy and non-cost considerations. since reliable cost data were unavailable.

[See GAO note.]

With respect to the recommendations of the draft report, we have consistently advocated the right of interconnection of Government-owned equipment to common carrier facilities. We do not regard a separate

GAO note: Material no longer related to this report has been deleted.

Keep Freedom in Your Future With U.S. Savings Bonds and independent proceeding before the Federal Communications Commission to establish this position as advisable at this time. We have given, and will continue to give, appropriate consideration to the alternatives of purchasing existing equipments, continuing to lease these equipments, or purchase new equipments, but we stress operational compatibility.

We have long recognized the advantages of Government ownership as opposed to leasing facilities in several of our areas of responsibility. Correspondingly, policies and guidelines prescribed by the Bureau of the Budget have been followed in the past and we will continue to follow them in the future. However, operations under the more liberalized Bureau of the Budget guidelines are, as a practical matter, severely impacted by competing demands for available budget dollars. Funding limitations often preclude realization of cost advantages flowing from Government ownership of assets even in circumstances where such advantages are more clearly demonstrable than in the instance of the ARS.

For example, the cost benefits in Government ownership, rather than leasing buildings, to accommodate permanent Federal office space needs can be clearly demonstrated. Yet, other relatively more pressing demands on the Federal budget have, over the years, occasioned underfinancing of the public buildings construction program with resultant uneconomic costs being incurred to meet such needs by leasing commercially owned space.

Another striking illustration of the adverse cost impact of inadequate budget dollars is the prevailing situation concerning automatic data processing equipment. Numerous General Accounting Office reports have amply demonstrated that, under appropriate circumstances, purchase of such equipment now in use by the Government would have resulted in major savings compared to the cost of continued leasing. This undeniable fact led to enactment of the so-called Brooks Bill more than one year ago. Yet, due to current demands of other Federal programs on limited budget resources, we have been unable to secure necessary funds to begin to make in-roads on these available savings.

Even if we were to assume that Government ownership of the ARS would be in the overall best interest of the United States, which we do not for the reasons set forth in this reply, as a practical matter we are not funded adequately for such acquisition and, in our judgment, there is little or no possibility of obtaining adequate funding in these times of national budgetary stress.

We do not consider it unreasonable to suggest that it would be most appropriate for the General Accounting Office to take the foregoing facts into account in its evaluation of agency actions such as those which are the subject of this report.

We trust our comments will be helpful and we are most willing to discuss them with you or to discuss them further with members of your staff. We respectfully suggest that, following a review of our comments, you may wish to reconsider the necessity of issuing a final report on the subject.

We appreciate the opportunity to offer our reactions to the draft report and they are enclosed with this letter.

Sincerely yours,

Lawson B. Knott, Jr.

Lawson B. Knott, Jr.
Administrator

Enclosure

COMMENTS OF GENERAL SERVICES ADMINISTRATION ON DRAFT REPORT OF GENERAL ACCOUNTING OFFICE REVIEW OF LEASING ARRANGEMENTS FOR THE ADVANCED RECORD SYSTEM COMMUNICATIONS NETWORK

I SAVINGS AVAILABLE THROUGH PROVIDING ADVANCED RECORD SYSTEM SUBSCRIBERS WITH GOVERNMENT-PURCHASED TELETYPEWRITERS RATHER THAN COMMERCIALLY LEASED SERVICES

The draft report alleges that substantial additional costs will be incurred because GSA contracted to lease teletypewriters rather than to purchase and maintain such equipment under GSA service programs.

[See GAO note.]

the draft report alleges that (1) guidelines prescribed by Bureau of the Budget Circular No. A-76, dated March 3, 1966, are but a continuation of Bureau of the Budget Bulletin No. 60-2, dated September 21, 1959;

[See GAO note.]

[See GAO note.]

(3) that GSA officials did not evaluate completely the relative financial advantages under purchasing and leasing of major agency subscriber elements; and (4) that GSA should have challenged ARS tariff terms that restrict the Government to leasing of narrow-band subscriber elements.

[See GAO note.]

With reference to this portion of the draft report, and its recommendations, our comments are as follows:

General Services Administration complied with the policy guidelines contained in Bureau of the Budget Bulletin No. 60-2, dated September 21, 1959, which was in effect during the ARS contract negotiations. Bureau of the Budget Circular A-76, dated March 3, 1966, significantly changes the cost difference as a factor to be considered.

The draft report is correct in referring on page 9 to the applicability of Bureau of the Budget Bulletin No. 60-2 at the time of the ARS contract negotiations. However, the contention that Bureau of the Budget Circular No. A-16 was but a continuation of Bureau of the Budget Bulletin No. 60-2 is not correct.

Bureau of the Budget Bulletin No. 60-2 stated as a basic policy that the Federal Government will not start or carry on'any commercial-industrial activity if such product or service can be procured from private enterprise through ordinary business channels. Exceptions to this policy could only be made on agency findings of compelling reasons including (a) national security, (b) costs, and (c) clear unfeasibility. Under exceptions for costs, justifications to start a Government activity could only be made if the costs were "analyzed on a comparable basis and the differences are found to be substantial and disproportionately large." (underscoring added).

The draft report implies that since the commercial sources would have been at least 10 percent higher than those associated with starting a Government activity, GSA should have considered the Governmental source rather than the commercial source. The evaluating differences under Bulletin 60-2 were much higher from a cost standpoint ("substantial and disproportionately large") than under Circular A-76 (10 percent). Therefore, we do not agree that the evaluation results under BOB Bulletin 60-2 would be "substantially the same under Circular A-76." The "10 percent less" criteria in favor of commercial activity of BOB Circular A-76 is far more flexible in favor of Government ownership than "substantial and disproportionately large" under Bulletin 60-2.

[See GAO note. Following page deleted.]

GSA officials did not precisely calculate the relative cost advantages of purchasing or leasing teletypewriters since reliable cost data could not be obtained and uncertain cost considerations were insufficient to overcome policy and other non-cost considerations.

An evaluation of the relative financial advantages of purchasing and leasing of teletypewriters was considered prior to the award of the ARS contract to the point where it was decided that additional evaluation would be neither required nor .'productive for several limiting reasons, among which were:

A. The controlling Government policy prevailing in 1963-1964 was set forth in Bureau of the Budget Bulletin No. 60-2 which stated, in paragraph 2 thereof, that

> "Policy: It is the general policy of the administration that the Federal Government will not start or carry on any commercial-industrial activity to provide a service or product for its own use if such product or service can be procured from private enterprise through ordinary business channels."

Commenting further, in paragraph 3, on justifying exceptions to this policy, the Bulletin states:

> "In these situations the burden of proof lies on the agency which determines that an exception to the general policy is required. A finding must be made that there are compelling reasons for Government provision of a product or service before an exception is authorized."

The "compelling reasons" enumerated by Bulletin No. 60-2 provided insufficient latitude for justification of Government provision of such service to permit an exception to Government-wide policy, in our judgment, even if all other prevailing factors had indicated an advantage in so doing. Nor did such other prevailing factors indicate the existence of such an advantage.

B. The Model 33 (ASR) selected as the terminal device for 81.6% of the terminal stations of the initial 1709 terminals had never been used on a nationwide network. Adequate support, in terms of operating experience, to justify such an investment was not available.

C. It was then believed, and subsequent experience has confirmed that opinion, that GSA could not have implemented ARS on the schedule then contemplated under a concept of Government ownership of the terminal devices. In addition to the justification of the exception to national policy spoken to above, it would have been necessary to negotiate with the contractor to use Government-owned equipment, additional funds to purchase the terminal equipment would have been required in the Federal Telecommunications Fund, and a staff of installer-maintainers, also compensated from the Federal Telecommunications Fund, would have required recruitment and training in a scarce labor market.

D. The contract contained a provision for liquidated damages which, in the event of a delay in Government procurement and installation of the terminal devices, could have not only deprived the Government of a claim for such liquidated damages but also could have subjected the Government to additional liabilities for delaying the contractor.

E. The availability of special signaling equipment for Government purchase and permission to install such equipment on terminals which obtained signaling impulses from sources outside the leased network would have presented serious contractual problems with the common carrier; e. g., in fixing responsibility for malfunctions in the system.

F. Difficulty in identifying sources of trouble as between network circuitry, switching equipment, and terminal devices would have precluded prompt diagnostic and corrective procedures and necessitated a duplication of manpower and effort as well as troublesome coordination between and among Government employees, common carrier employees, and the terminal customer.

For these reasons, the Government-ownership of terminal devices was rejected on the basis that, from the standpoint of contract administration in the interest of the Government, a contract involving a common carrier with two sub-contractors and Government-owned, -installed, and -maintained equipment would have presented a contractual incongruity regarded as distinctly disadvantageous to the Government and to the scheduled installation.

In view of the modification in the Government-wide policy as set forth in Bureau of the Budget Circular No, A-76 permitting greater flexibility in such determinations than that prevailing under Bureau of the Budget Bulletin No. 60-2, we are reexamining the relative advantages and disadvantages, from an economical standpoint, of Government ownership and maintenance of these ARS teletypewriters. Our preliminary estimates indicate that comparison of leasing costs with purchase, maintenance, and amortization costs would show a cost difference in favor of purchase. Offsetting these estimated cost differences, however, are the capital and other considerations hereinbefore set forth, a procurement leadtime of at least nine months, limited availability of qualified personnel, recruiting and training problems, acquisition and preparation of depot space, and time consumed in phasing in such an operation, Other factors bearing upon this question are also hereinafter discussed.

A GSA challenge of ARS tariff terms that restrict the Government to leasing. of narrow-band subscriber elements would have been inconsistent with our lease decision and is not feasible at this time.

The draft report suggests the institution of proceedings before the Federal Communications Commission lo eliminate the tariff regulation which prohibits the Government from purchasing teletypewriters for use by GSA and other civil agencies and is critical of our failure to oppose this regulation at the time it was filed. Since this also has a bearing upon factors involved in determining the merits of purchasing equipment rather than leasing such equipment, a portion of that which we have to say on this point relates also to the immediately preceding discussion.

The question of interconnection with "other Company" equipment, which would include Government-owned equipment, was specifically raised with Western Union and answered by them on December 11,1963. Their response was as follows:

> "In our proposal we are offering a complete service to meet your requirements. Basically it is not our intention to permit indiscriminate interconnection with either Government or other common carrier's facilities. We do not, however, have a hard and fast policy against interconnection of facilities: Rather, our decision to interconnect or not is based on the circumstances involved. You may be assured of a realistic approach to the service aspects associated with interconnection for the handling of traffic originating in or destined to other networks."

Special attention is drawn to the references to "complete service," "service aspects," and the reference to interconnection with other networks. In this connection, the draft report refers, on page 5, to the fact that only two bidders had offered "total system services." While the ARS is comprised of several elements, those of program design, communications experience and expertise, systems management, and systems engineering were all essential elements of the total service concept sought by GSA in undertaking the ARS and the "complete service" offered by Western Union in its response to the invitation.

We do own and are maintaining a small number of teletypewriter equipment associated with communications security equipment for the Atomic Energy Commission. This, however, is a unique circumstance recognized by the carrier and included in the tariff at GSA's request as an exception where a secure requirement exists. We were able to meet the AEC requirement from existing established cryptographic maintenance depots and, accordingly, could maintain the teletypewriter equipment associated with the communications security equipment at relatively little increase in cost.

General Services Administration has traditionally advocated the right of direct interconnection of Government-owned equipment with that of the common carrier. A notable example of that position appears in our testimony before the Federal Communications Commission in Docket 14650. By the same token, the historical and traditional pattern of the common carriers, supported by the Federal Communications Commission, State regulatory bodies, and the courts, has been to deny such interconnection privileges except on such grounds as military necessity and security. Thus, even assuming the validity of the alleged cost savings which would accrue to the Government by purchasing and maintaining these teletypewriter equipments, a long and protracted period of litigation would be anticipated before final decision on such interconnection privilege could be obtained. Assuming further that the interconnection right would be granted, increased service charges on other common carrier services in order to recoup earnings lost through the absence of the leasing arrangement may offset the assumed cost savings. The elimination of carrier investment does not reduce major expenses but merely requires that they be recovered in charges for other service.

The ARS tariff offering, for example, is one in which total system revenue requirements are recovered through total system charges. This is consistent with communications common carrier ratemaking in general in that each chargeable tariff item may or may not recover its full share of fully allocated carrier costs. The profit margin to the carrier may vary between customers and, for the same customers, between various service locations. The Federal

Communications Commission cannot and does not regulate common carrier rates on a customer-by-customer or station-by-station cost allocation, but must and does use average costs. Were FCC to permit one customer to provide those portions of a communications system which would be more economical to that customer, the carriers loss of revenue from that source would have to be recouped through increased charges to that customer for the carrier-provided portion of that system, or through increased charges to other customers. Neither solution is practical or equitable.

In short, neither an objection to the Western Union ARS tariff requirement at the time of its filing in 1966, nor a proceeding in the future to eliminate that requirement, could be successfully proposed on the sole ground that there would be a cost reduction to the Government if it furnished its own teletypewriters.

As an additional consideration, had the Government purchased these machines, a high degree of contractual and operational incapability would have resulted by virtue of the various difficulties encountered in eliminating malfunctions within these equipments, not the least of which was an extremely sensitive parity error problem. To have had a common carrier as the prime contractor with 'two subcontractors and Government-owned equipment for terminals would have presented difficulties in fixing responsibilities for system failures that would nave been operationally, economically, and contractually insurmountable.

As an example, system failures could be caused by a defective circuit, a defective switch, a programing error, a computer failure, a power supply failure, or by improper installation, adjustment, and maintenance of the teletypewriters. Under the ARS contract, GSA can look to a single source for corrective action in all such instances. We could not do so if GSA owned the teletypewriters. A vivid illustration of this occurred when it was necessary to correct parity errors in the system, Diagnostic procedures pointed to possible trouble areas in the computers, the switches, the circuitry, and the teletype machines. Eventually, a maladjustment in the teletypewriters was found to be the source of the defect. However, it was recognized from the outset that it was a problem for the contractor; had GSA owned the equipment, the contracting officer could not have fixed responsibility for the system defect without a time-consuming and expensive diagnostic procedure at additional cost to the Government,

Finally, the draft report reflects an apparent misunderstanding of the nature and terms of our arrangement with the carrier for these teletypewriter equipments. These are all tariff items and are subject to cancellation at the Government's option on one day's notice (after the first 30 days of service}, without termination liabilities. Hence, any calculation of additional cost to the Government for leasing these equipments as opposed to purchasing them is speculative and conjectural since it is predicated upon a minimum usage period of five years which is **not** applicable to the teletypewriters used in the **ARS** and which could be substituted, or replaced with other types of terminals, if deemed advisable, at any time.

[See GAO note. Four following pages deleted.]

GENERAL SERVICES ADMINISTRATION

Washington, D.C. 20405

FEB 8 1968

Mr. Irvine M. Crawford
Assistant Director
Civil Accounting Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Crawford:

We appreciate the opportunity you have afforded us to again review and comment on your draft report on the Advanced Record System (ARS), subsequent to its revision to reflect some of the views which we expressed in our letter of December 2, 1966, concerning a previous draft of the report.

The revised draft report contains the following recommendations:

(1) That prior to the expiration of the present contract term, GSA request Western Union (WU) to initiate action with the Federal Communications Commission (FCC) to eliminate the tariff provision that prohibits use of Government-furnished teletypewriters by GSA and other civilian agencies;

(2) If WU does not act, that GSA institute proceedings before the FCC to have the section eliminated from the tariff; and

(3) That in future communications procurements, consideration be given to alternative means of obtaining the services and to the relative costs thereof so that the means most favorable to Government may be determined.

As indicated in our December 2 letter, we are in agreement with the above recommendations. However, the revised report retains other statements and conclusions with which we are in disagreement.

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[See GAO note.]

We point out further that, where practical options for owning or leasing elements of a complex system do exist, the decision to own or lease cannot rest on relative costs alone. The purchase vs. lease decision depends upon many factors and there are many variables. As you know, the Comptroller General recently suggested that the Congress itself may wish to provide guidance to the executive agencies to minimize variations in amount and techniques of discounting used by agencies.

[See **GAO** note.]

Our position is that purchase of the teletypewriters was not a practically available option and, therefore, any projection of savings through purchasing, rather than leasing, the teletypewriters is unrealistic. At the time we signed the contract we could not, nor can we now, obtain the necessary type of service, if the Government owned the teletypewriters. This is so, in our opinion, because of the interdependence of the many elements of the complex ARS and the absolute essentiality, from an acceptable service standpoint, of placing the responsibility for system maintenance and operation upon a single contractor to which we can look for such service,

Essentially, what we contracted for was a total teletype communications service. It was our judgment when we signed the contract, upon the basis of the information then available to us, that Government ownership of the teletypewriters, vital and integral components of the ARS, would have precluded or at least seriously impaired satisfactory system operation. Our experience with the ARS in the interim strengthens our conviction that our initial judgment in this respect was correct and remains so today. In this connection, it is to be noted that many Government activities, too numerous to enumerate, are conducted with leased facilities, equipment, and service without any serious questions being raised insofar as we are aware. This is particularly so where system efficiency and operational effectiveness are paramount considerations, as in the instant case.

We would appreciate your making this letter, as well as our December 2 letter, a part of any report submitted to the Congress.

Again, may I thank you for this opportunity you have afforded us to clarify our position with respect to the matters here involved.

Sincerely yours,

Lawson B. Knott, Jr.

Lawson B Knott, Jr.
Administrator

western union

R.W. Mc FALL
PRESIDENT

November 22, 1966

Mr. Irvine H. Crawford
Assistant Director
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Crawford:

I appreciate having the opportunity to comment on the proposed report on the GSA leasing arrangement for the Advanced Record System Communication Network as transmitted by your letter of October 11, 1966.

Western Union's views on this draft report were conveyed by Messrs. Hilburn and Schenk in their meeting with you and your staff on November 16th. Therefore, I trill not toke the time to cover all of the points that they discussed, but will only summarize what I consider to be the more important aspects of this matter.

[See GAO note.]

60 HUDSON STREET, NEW YORK. NEW YORK 10013

GAO note: Material no longer related to this report has been deleted.

Mr. Irvine M. Crawford November 22, 1966

[See GAO note.]

Also, I believe that you should re-examine your estimates of the service support required to maintain the teleprinters. The analysis in the draft report was based only on the equipment in operation at any one time. Actually, we maintain a stock of approximately 500 additional machines to provide for the above-mentioned rotation of equipment to the factory for rebuilding, plus spare units distributed throughout the field where they can be close at hand in the event of malfunction of the on-line equipment. The distribution of this back-up equipment, which is unique to the ARS, and the technician force that is available to render service when it is needed, is also worthy of your further consideration. Clearly, the 10 depot GSA service complex suggested could not provide maintenance support as promptly, or as economically, as our much larger service organization which has shops and technicians in every major city of the United States.

Mr. Irvine M. Crawford November 22, 1966

Lastly, in order to place any financial analysis of the cost-vs-value of a complex and sophisticated communications system such as the AES in proper context, I consider it essential to state explicitly that what must be analyzed. is the total system, rendering a communications service to the user and not just a collection of its component. elements.

It is, of course, true that the AES can be examined in terms of such major component elements as:

(1) The circuit switch network,
(2) The message switches (computers),
(3) The terminal equipments, and,
(4) The communications media to interconnect these elements.

However, a fifth ingredient is most essential to enable these elements to function together as a single viable entity. This vital ingredient is the combination of Systems Engineering, Systems Management, Program Design, and Communications Expertise.

On Page 5 of the draft report, it is noted that all bidders were eliminated except AT&T and Western Union, because only these two bid to supply "total systems services". Again on the same reference, the report notes that GSA preferred dealing with one contractor who could be held responsible for the total system performance. We agree with and wish to underscore this observation. In fact, we believe that no other contracting philosophy would have produced the desired end result.

Mr. Irvine M. Crawford November 22, 1966

Western Union will, of course, be happy to further discuss these and other more dettiled comments with you to any extent that you desire.

Sincerely,

PRINCIPAL OFFICIALS OF THE GENERAL SERVICES ADMINISTRATION RESPONSIBLE FOR ADMINISTRATION OF THE ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
ADMINISTRATOR OF GENERAL SERVICES:		
Lawson B. Knott, Jr.	June 1965	Present
Lawson B. Knott, Jr. (acting)	Nov. 1964	June 1965
Bernard L. Boutin	Nov. 1961	Nov. 1964
COMMISSIONER, TRANSPORTATION AND COMMUNICATIONS SERVICE:		
Douglas E. Williams	Oct. 1966	Present
Robert B. Conrad (acting)	Apr. 1966	Oct. 1966
Robert B. Conrad	Oct. 1961	Apr. 1966
ASSISTANT COMMISSIONER, OFFICE OF COMMUNICATIONS (note a):		
Robert B. Conrad (acting)	May 1967	Sept. 1967
Robert B. Conrad	Apr. 1966	May 1967
Stewart Schmalbach (acting)	Aug. 1965	Apr. 1966
M. Lloyd Bond	July 1963	Aug. 1965
Andrew A. Horner (acting)	July 1962	July 1963

[a] On August 21, 1967, the Office of Communications was restructured on a functional basis. The activities discussed in this report are now, generally, under the Office of Telecommunications Engineering and Requirements and the Office of Telecommunications Operations.