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The Commonwealth of Massachusetts

NO. 81-9-A-583

REPORT ON THE EXAMINATION OF THE ACCOUNTS
OF THE
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
JANUARY 1, 1980 TO DECEMBER 31, 1980



*From the Office of
State Auditor John J. Finnegan*

TABLE OF CONTENTS

	<u>Page</u>
Organization	1 - 3
Statutory References	4
Auditor's Report	5 - 6
Audit Findings and Responses:	
Summary of Audit Findings	7 - 8
1. Overtime	8 - 9
2. Revenue Shortages	9 - 11
3. Parking Lot Revenue Controls	11 - 13
4. Internal Audit Function Needed	13 - 14
5. Lack of Inventory and Control of Real Estate	14 - 15
6. Professional Service Contract Payment Procedure	15 - 16
7. Professional Service Contract, Supplemental Agreements	16 - 18
8. Questionable Consultant Services	18
9. Consulting Services for Art in Transportation	18 - 19
10. Filming of the Authority's Transportation Procedures During the Papal Visit	20
11. Regional Attitudinal Study	20 - 21
12. Authority's Regulations of Approval for Contract Price Changes	21 - 22
13. South Boston Power Plant - Management Indecision	22 - 23
14. Purchase of Blue and Orange Line Cars	23 - 25
Financial Statements:	
I Balance Sheet, December 31, 1980	26 - 27
II Comparative Cost of Service and Income Statement, Two Years Ended December 31, 1980	28 - 29
Notes to Financial Statements:	
1. Commuter Rail	30 - 31
2. 1980 Cost of Service in Excess of Income versus 1981 Approved Budget	31
3. Comparative General Statistics - 1980-1979-1978	32
4. Comments on Comparative Cost of Service (Statement No. II)	32
5. Federal Grants and Loans	32
6. Federal Operating Assistance Grants	33
7. Pension Costs	33 - 34

TABLE OF CONTENTS (CONTINUED - 2)

	<u>Page</u>
Supplementary Schedules:	
I Status of Total Funded Debt, December 31, 1980	35
II Schedule of Construction Contracts in Effect, January 1, 1980 to December 31, 1980	36
III Summary Schedule of Professional Service Contracts Awarded, January 1, 1980 to December 31, 1980	37
Supplementary Information:	
1. Board Members and Executive Officers	38
2. Real Cost to Taxpayer for MBTA Operations	38
3. Estimated 1982 Fiscal Year Assissment Based on 1980 Net Assessable Cost of Service on the 79 Cities and Towns	39 - 41
4. Administrative Payroll	41
5. Revenue Fleet Availability	41 - 42
6. D.P.U. Bus Inspections	42
7. MBTA Retirement Fund Performance Record	42
8. 1980 Legislation	43
9. Design Engineering Services - Southwest Corridor and Northwest Corridor	43
10. Office Rentals	44
11. Defective Third Rail Heaters	44 - 45
12. Charlestown Bus Garage	45 - 46
13. Force Account Agreements	46 - 47

ORGANIZATION

December 31, 1980

Massachusetts Bay Transportation Authority

Chapter 563 of the Acts of 1964 abolished the Metropolitan Transit Authority and established its successor, the Massachusetts Bay Transportation Authority (MBTA), by amending the General Laws by inserting therein Chapter 161A. Chapter 1140 of the Acts of 1973 and Chapter 581 of the Acts of 1980 revised the organization of the MBTA.

The Authority is managed by a board of seven directors, one of whom shall be the Secretary of Transportation and Construction and serve as chairman, six of whom shall be appointed by the Governor and who shall serve coterminously with the Governor, one with the approval of the Advisory Board, one with the approval of the fourteen cities and towns, and one with the approval of the sixty-four cities and towns.

One of the appointees of the Governor shall be experienced in transportation, one a member of organized labor and one experienced in administration and finance. No more than four of the seven directors shall be members of the same political party. Two of the appointees shall be residents outside of the area constituting the Authority.

The Chairman of the Board of Directors shall not receive a salary and each of the other six directors shall receive a salary of \$7,500.

The Board of Directors shall appoint a General Manager who shall be approved by the Advisory Board.

ORGANIZATION (Continued -2)

The Authority's main office is located at 140 Federal/50 High Street, Boston. The Authority occupies five floors at this address at a basic annual rental of \$520,037. This office contains the Authority's administrative and legal work forces, offices for the directors of the Authority and storage space.

The Authority also owns a substation and signal control operations building at 45 High Street, Boston. The Transportation Department is located in this building.

Members of the Board of Directors

<u>Name</u>	<u>Required Field of Expertise</u>	<u>Term Expires</u>	<u>Annual Salary</u>
Barry M. Locke, Chairman 50 High St. Boston (Replaced by James F. Carlin May 5, 1981)	-	*	-
Paul E. Means 199 William Street Stoneham	Transportation	*	\$7,500
Richard L. Taylor 21 Kenilworth Street Roxbury	-	*	7,500
John J. McCarthy 6 Lantern Avenue Wakefield	Administration and Finance	*	7,500
Walter J. Ryan 94 York Street Canton	Labor	*	7,500
Vacant	-	*	7,500
Vacant	-	*	7,500

* Coterminous with the Governor

ORGANIZATION (Continued -3)

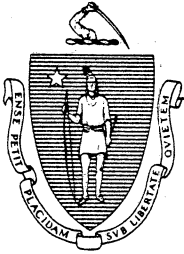
A list of executive officers with their annual compensation as of
December 31, 1980 follows:

<u>Name</u>	<u>Title</u>	<u>Annual Salary</u>
**	General Manager	\$50,000
Joseph H. Elcock	General Counsel	43,000
John R. Launie	Treasurer-Controller	43,000
Andrew C. Hyde	Director of Operations	42,500
Richard J. Dempsey	Director of Construction	39,500
Paul J. Murphy	Director of Labor Relations and Personnel Administration	39,000
J. David White	Director of Materials	39,000
Paul P. DiNatale	Information Editor	23,000
Charles W. England	Director of Railroad Operations	38,000
Richard L. Whelan	Chief of Police	36,000
Paul J. Lennon	Director of Safety	30,000
Ernest S. Deeb	Director of Sales and Marketing	28,500
William S. Casey	Director of Real Estate Management	35,000

** Vacant December 31, 1980 - See Supplementary Information #1

STATUTORY REFERENCES

<u>Acts of</u>	<u>Chapter</u>	<u>Resolves</u>
1964	563, 730	
1965	323, 444, 509, 650, 684, 687, 723, 794, 864, 882	
1966	77, 259, 573, 628, 636	72
1967	24, 81, 87, 537, 547	126, 145
1968	147, 196, 282, 284, 310, 539, 540, 620, 664, 703, 728	90
1969	574, 578, 723, 729, 831, 864, 897	37, 75
1970	8, 513, 514, 604, 618, 799, 829	
1971	172, 245, 257, 593, 853, 1012, 1043, 1975, 1100	
1972	141, 598, 646, 681, 697, 704	
1973	857, 1029, 1077, 1140, 1159	12, 107, 121, 134
1974	528, 618, 620, 703, 825	
1975	92, 205, 291, 292, 746, 757, 859	
1976	4, 251, 256, 283, 298, 370, 439	
1977	207, 231, 356, 363A, 376, 640, 726, 873, 877, 970	2, 9
1978	70, 405, 462, 542, 577	19
1979	151, 298, 345, 393, 480, 545, 731, 784	
1980	42, 163, 501, 504, 581	



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The Commonwealth of Massachusetts
Department of the State Auditor
State House, Boston 02133

John J. Finnegan
Auditor of the Commonwealth

AUDITOR'S REPORT

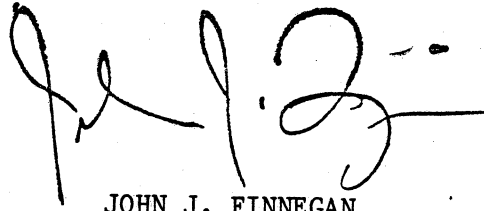
James F. Carlin, Acting Chairman
Massachusetts Bay Transportation Authority
50 High Street
Boston, Massachusetts 02110

We have examined the balance sheet of the Massachusetts Bay Transportation Authority as of December 31, 1980 and the related comparative cost of service and income statement for the two years ending December 31, 1980 and December 31, 1979. Our examination was made in conformance with generally accepted auditing standards, and included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above present fairly the financial position of the Massachusetts Bay Transportation Authority as of December 31, 1980 and the results of its operations for the two years ending December 31, 1980 and December 31, 1979, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Supplementary Schedules No. I, II and III are included as additional information and have been subjected to the audit procedures applied in the

examination of the financial statements mentioned above, and are, in our opinion, fairly stated in all material respects in relation to the financial statements taken as a whole.

A handwritten signature in black ink, appearing to read 'John J. Finnegan', with a horizontal line extending to the right.

November 6, 1981

JOHN J. FINNEGAN
State Auditor

AUDIT FINDINGS

Summary of Audit Findings: This audit of the MBTA points out the serious need at the Authority for improved and revised management practices, contracting procedures and regulations, controls and monitoring of all activities and reinforces this department's long-standing recommendation that the Authority establish a strong and independent internal audit section.

The existence of these serious accounting and management weaknesses has caused fare revenue shortages, unnecessary and questionable purchases and contracts and provides many opportunities for waste, fraud and abuse, particularly in the Authority's real estate transactions and parking lot leasing operations.

We recommend, as strongly as we can, that the Board of Directors and the General Manager take immediate action to make the necessary changes in order to adequately protect the Authority's assets, maximize its revenues and increase its opportunities for savings in order to alleviate the increasing tax burden the Authority has become to both the local and state taxpayer. These efforts take on added significance during the current period of forced reductions in governmental operating costs.

The following list highlights those areas where the Authority has lost opportunities for savings, lost fare revenue or wasted money on questionable and unnecessary purchases:

a. Overtime pay (finding 1 pages 8 - 9)	\$ 8,278,000
b. Unaccounted for farebox revenue (Finding 2 pages 9 - 11)	250,000
c. Potential parking lot revenue (finding 3 pages 11 - 13)	355,000
d. Supplemental Agreements for Professional Service Contracts (finding 7 pages 16 - 18)	12,000,000
e. Unnecessary consultant contracts for:	
Art in transportation (finding 9 pages 18 - 19)	33,400
Filming of transportation procedures (finding 10 page 20)	82,500
Study of commuter's and non-commuter's attitudes (finding 11 pages 20 - 21)	49,000

f. Waste due to management indecision over alterations at South Boston Power Plant (finding 13 pages 22 - 23)

5,300,000
\$26,347,900

1. Overtime: The MBTA distributes its overtime on a seniority basis, in compliance with the present union agreement. There is no limit to how many hours of overtime an individual may work with the exception of motormen and operators of streetcars, who are limited to 20 hours per week.

Our examination of individual employees' overtime earnings for 1980 revealed that 368 employees had overtime earnings in excess of \$5,000. Twenty-eight of these employees had overtime earnings in excess of \$12,000. These twenty-eight employees averaged 842 overtime hours per year and 16 overtime hours per week.

The highest individual overtime compensation was \$20,395. This employee works in the Revenue Collection Department and worked approximately 1,200 overtime hours for the year, averaging 23 overtime hours per week and received a total of \$43,677 in compensation for the year.

An analysis of overtime payments made to MBTA employees over the past five years follows:

<u>Year</u>	<u>Amount</u>
1980	\$ 8,278,457
1979	10,665,354
1978	11,127,363*
1977	8,563,399
1976	6,923,265

* Includes overtime charges incurred during Blizzard of 1978.

Prudent business practice suggests that a more even and equitable distribution of overtime would result in the increased productivity of the Authority's manpower.

Section 8 of Chapter 581 of the Acts of 1980 states that:

"The directors shall have authority to bargain collectively with labor organizations representing employees of the Authority and to enter into agreements, with such organizations relative to wages, salaries, hours, working conditions, health benefits, pensions and retirement allowances of such employees; provided, however, that the directors shall have no authority to bargain collectively and shall have no authority to enter into collective bargaining agreements with respect to matters of inherent management right which shall include the right:

(VII) to assign and apportion overtime.

(VIII) to hire part-time employees."

We expect that the Authority will significantly reduce its overtime costs by exercising these so called "management rights provisions" which give the Authority the right to assign and apportion overtime and to hire temporary employees.

2. Revenue Shortages: The MBTA counts and reconciles its fare revenue on a daily basis. Farebox revenue is brought to the Authority's money-room where it is counted and compared to the revenue which has been registered through the farebox meter. Any variance (overage or shortage) is recorded on a weekly summary sheet. Our review of these weekly summary sheets indicated that the Authority is reporting frequent variances.

In recent years, the Authority's weekly summary sheets have revealed cash shortages. Faulty farebox meters, misreading of farebox meters, mismatched farebox meter cards and possible employee pilferage and/or theft are some of the factors that have contributed to these shortages. A summary of cash shortages reported for the past three years follows:

	<u>1980</u>	<u>1979</u>	<u>1978</u>
Surface Lines	-	\$128,937	\$ 95,814
Rapid Transit	\$122,382	229,455	353,605
	<u>\$122,382</u>	<u>\$358,392</u>	<u>\$449,419</u>

If all fare revenues collected were properly safeguarded, and farebox meters functioned properly the money counted and reported by the Authority's moneyroom would agree with the collection figures reported by each meter. This, however, is not the case because the coin counting mechanisms within the fareboxes have frequently jammed.

These jammings are primarily caused by foreign coins, slugs, dollar bills, and/or bent coins dropped into the farebox. This situation prevents coins from passing through the coin counting mechanism into the farebox storage area. Therefore, when a farebox jams, the fares subsequently deposited are not registered by the counting mechanism.

Prior to 1980, when a farebox jammed a mechanic would disassemble the farebox and the unregistered fares would be emptied into a bag, sealed and turned into the bus garage for separate processing. Thus, when the Authority's moneyroom totaled and reconciled cash inside a previously jammed farebox it was comparing only that cash which had passed through the counting mechanism. Unregistered or "Jammed cash" transmitted in the sealed bag was accounted for separately.

Under new procedures established during 1980, a mechanic now disassembles the farebox, empties the cash into the storage area within the farebox, reassembles and unjams the farebox. The cash emptied into the storage area did not pass through the counting mechanism and is therefore not registered. When the Authority's moneyroom compares the money inside this jammed farebox to the revenue recorded as shown on the farebox meter an overage results. These offsetting overages have completely distorted the results of the Authority's weekly summary sheets so that no meaningful analysis in 1980 for surface lines was possible.

These new procedures were instituted to place better controls on fare revenue. However, because the Authority cannot now determine how much revenue was actually deposited into the fareboxes, it is also impossible for it to determine how much revenue is unaccounted for. Using the trend demonstrated in the comparative table of cash shortages over past years, the Authority could conceivably have lost \$250,000 in 1980.

In 1980, the Authority created two revenue auditor positions to oversee the revenue collection process. Neither of these positions was filled permanently as of December 31, 1980. This oversight function is being performed on a part-time basis by a clerk in the revenue department. The lack of concern and attention to the problem by Authority management is completely inadequate and unacceptable.

To compound the problem, we found that the Authority does not analyze drivers' cards to spot revenue trend variances from estimated norms and/or to identify the frequency of jammed fareboxes and shortages.

We therefore strongly recommend that the Authority institute the following measures:

- a. Provide an adequate revenue audit staff in order to scrutinize, identify, reconcile and alleviate these shortages.
 - b. Institute a stronger system for accounting for the revenue from jammed fareboxes.
 - c. Establish revenue trends and norms for bus runs for comparison with drivers' run cards to determine if there are patterns to the shortages and jammed fareboxes.
3. Parking Lot Revenue Controls: On May 1, 1978 the MBTA executed two-year lease agreements with five private companies to operate seven groups

of parking lots at twenty-five separate locations throughout the transit system. The leases are awarded to the highest eligible and responsible bidder. These lots have a capacity of approximately 9,780 cars. Original estimates of gross revenue were in excess of \$2.7 million. During 1980, records disclosed reported receipts of only \$2,087,223, shared as follows: MBTA \$1,211,894 (58%), Lessees \$875,329 (42%).

As the MBTA continues to expand its rapid transit system, the number of these parking lot spaces will continue to increase. We recommend the Authority study whether it would be more profitable to manage these lots itself and retain all revenues. In the interim, the authority should at the very least monitor and audit parking lot revenue to determine why reported receipts vary so greatly from estimated receipts.

Tighter controls and monitoring would likely narrow this large variance and would potentially generate approximately \$355,000 of additional revenue to the Authority. The current system of cash transactions obviously contains tremendous potential for theft of parking fees, which may in turn account for the variance between estimated and actual revenue from these lots. This situation further supports our argument for a strong and independent internal audit function at the MBTA.

Agency's Response:

"Each parking lot Lessee incurs expenses, the most important being payroll and insurance. As a result, the parking lot Lessees did not receive a profit of \$875,329 as the report implies, but a net amount after expenses. This would also be true if the Authority managed the lot itself.

"This entire matter is currently undergoing a comprehensive analysis of revenues versus expenses. Its purpose is to determine the feasibility of the Authority managing its own lots. When completed, the report will present management information upon which a determination may be made as to the future operation of these facilities."

Auditor's Further Comment:

Department of the State Auditor reports for the past several years have been criticizing various aspects of revenue collections and recommending that the Authority determine the feasibility of operating these lots with their own forces.

4. Internal Audit Function Needed: At the present time the Authority has an internal auditing section within the Treasurer - Controller's department. This section is now performing audits on capital expenditures in conjunction with the Federal Capital Expansion Program. This section does not review the other activities of the Authority.

Prudent management practices require that an organization as large as the Authority with its many noted problems would have a staff of internal auditors that would:

1. Measure the integrity of financial reports.
2. Determine compliance with policies, procedures, laws, and regulations which have or could have a significant impact on operations and reports.
3. Assess the economy and efficiency with which resources are employed and assets are safeguarded.
4. Determine whether operating objectives, goals and associated control procedures are properly established.
5. Guard against fraud, waste and abuse.
6. Check for revenue losses.

As evidenced elsewhere in this report, we have noted several examples of inefficiencies as well as examples of uneconomical practices. Furthermore, the Authority is undergoing separate investigations of the real estate department as well as the workmen's compensation section. Relating to these investigations are the indictment of a prior general manager and a fire which destroyed various confidential files at the Authority's office on 45 High Street.

Prior MBTA budgets have not provided the Internal Audit Section with the necessary funding and staff to adequately audit the various operating activities of the Authority. These budgets have only funded federally mandated audits mentioned above.

We therefore recommend that the Authority provide for a sufficient internal audit staff which would function independently of management and have broad reporting responsibilities.

5. Lack of Inventory and Control of Real Estate: As of December 31, 1980, the Authority had 1,585 revenue producing leases for use of the Authority's real property. The Department of Real Estate Management which was created in December, 1979 is responsible for oversight of these revenue producing leases. In the last two years, the Authority has rebid or renegotiated 547 railroad related agreements and 20 transit related agreements.

During the course of our audit we requested an inventory of real estate property owned by the Authority. The Authority could not provide us with this information because a complete and current inventory of real property does not exist anywhere within the Authority.

Prudent business practices and good accounting practice require such records be kept. This lack of control contributes to the opportunities for abuse or misuse of assets.

Without a complete inventory of real property owned, the Authority's managers do not possess the proper information to determine whether all of the Authority's property is being used to generate additional revenue, what land may be surplus or whether land is being used for unauthorized activities.

The Authority attributed its lack of inventory control to the fact that the Department of Real Estate Management was not created until December of 1979 and has not had sufficient staff to formalize this inventory.

The Authority has entered into an agreement with Economics Research Incorporated to prepare an inventory of its real estate holdings. We recom-

mend that the Authority prepare and continuously update this inventory in order to provide for the most efficient and economically beneficial use and control of its real estate holdings.

6. Professional Service Contract Payment Procedure: Our examination of professional service contracts revealed a less than adequate system for monitoring these payments. This is a result of contract administration's policy of recording payments as of the invoice date instead of the date when the invoice was approved for payment. For example, the contract administration's payment record for contract number 065-003 as of 12/31/80 reflects a total paid to date of \$2,719,086. The actual amount paid as of 12/31/80 was \$2,674,119. Another example is contract number 094-001. The contract administration's records reflect total payments of \$386,619 as of 12/31/80. Actual payments as of 12/31/80 were \$365,500.

This situation is compounded by the assumption in contract administration's policy that the voucher amount approved for payment is in fact the amount paid. As of July 1981, we were informed that the only way contract administration can determine what has been paid to date on a contract, as opposed to what has been approved for payment, is to call the Treasurer's office and ask.

We recommend that a full cycle accounting system be implemented in order to eliminate the potential for overpayment and also enable more efficient and coordinated management of contract information.

Agency Response:

"Contract Administration's payment records have been developed so as to provide specific detailed information such as total costs incurred, current retainage, and ap-
proved vouchers processed for payments to date. It is re-
cognized that actual payments are made by the Treasurer/Con-
troller's office (normally every two weeks). That office is
the proper and only source for data relating to payment."

"In response to the SAR/(State Auditor) recommendation, a procedure has been established whereby the Treasurer-Controller's office advises Contract Administration in the event an approved payment voucher has subsequently been withheld or adjusted. There is no potential for overpayment.

"The implementation of a "full cycle accounting system" such as recommended by the SAR/(State Auditor) would not only provide the above information but could be utilized for other useful financial and payment data. This capability could best be developed as a management information system through the existing Cost and Schedule Control System (CASC) Computerized Project Management System. The Authority recognizes the potential benefits to be derived by applying the full capabilities of CASC; however, due to continued staffing deficiencies such advantages have not been realized."

7. Professional Service Contracts, Supplemental Agreements: There are three types of Professional Service Contracts: (1) architectural; (2) engineering; and (3) consulting. The first two types are followed by some type of construction activity; the third type is awarded for a wide variety of services ranging from ridership studies to interagency agreements which involve work with a particular city or town implementing a computerized accounts payable system. In most cases these contracts are awarded using a particular selection board and process as outlined in the Authority's regulations.

After the initial award of a contract, certain factors may arise necessitating an adjustment in the contract amount. This adjustment is generally accomplished through a supplemental agreement which is negotiated as a result of a change in the scope of work, an extension of time or to settle a legal claim. These supplemental agreements usually increase the cost of the work and are awarded and authorized without any competitive selection process. Two examples of how this procedure greatly adds to costs follow:

Contract 065-018 was awarded to a joint venture of Kaiser Engineers, Inc. and Fay, Spofford and Thorndike, Inc. for \$1,936,299 in April 1977. The

total estimated cost of this design work for the Southwest Corridor, Red Line Extension was to be \$18,453,837. Since 1977 this estimated design cost has increased to over \$47 million. This represents an increase of 156% over the original estimate.

Contract YS-036 was awarded to DeLeuw-Cather and Co. for \$543,000 for design work at the Charlestown Bus Garage. This contract has had supplemental agreements totaling \$300,750 increasing the fee by 55% to \$843,750.

From January 1, 1980 through December 31, 1980 there were 103 Supplemental Agreements authorized for over 12 million dollars on 37 Professional Service contracts.

It appears that by the Authority's routine approval of these numerous supplemental agreements it is not effectively controlling the costs projected by their designers. It is recommended that the Authority establish during initial selection and negotiations a maximum design cost and adhere to these limits. Furthermore, the Authority should not be issuing many supplemental agreements in such volume and dollar magnitude.

Agency Response:

"The State Auditor's Report (SAR) states that Supplemental Agreements resulted from "... a change in the scope of the work (additions or deletions), extension of time to complete the contracted work or to settle legal claim." It further compares basic contract award amounts to supplemental Agreement amounts.

"It should be noted that a firm is normally selected to perform professional services for all of the envisioned and proposed work phases of a specific project. If a firm was selected to perform only a portion of the entire design effort, it would become necessary, under UMTA's and the MBTA's sole source guidelines, to repeat the consultant evaluation and selection process for each subsequent phase prior to such work being authorized.

"Occasionally, however, initial authorization is limited to the early phases (such as schematic studies or preliminary design work) until such time that the entire scope and cost parameters have been thoroughly examined and

more fully developed and defined. Partial authorization procedures are also necessitated (and used) in instances where funding limitations exist at the time of selection. When additional funding does become available, cost and scope negotiations are finalized for all or portions of the remaining work which is to be authorized at that time.

"The procedure described above which has been utilized with the complete awareness of Authority's Board of Directors and the U. S. Department of Transportation, explains why the amounts of Supplemental Agreements are substantial compared to the basic award amounts."

8. Questionable Consultant Services: The following three consultant contracts are cited for their questionable necessity and frivolous purposes. In these times of economic stress it seems inappropriate that the Authority should still be spending money on this type of contract. The Authority's purpose is to transport rapidly, efficiently, and economically the people dependent on the system for service.

9. Consulting Services for Art in Transportation: On December 15, 1978 the Authority executed a Federally funded contract with Ms. Sydney Roberts Rockefeller, effective September 1, 1978. The staff summary detailing the need for her services was dated October 13, 1978. The Authority agreed to pay the consultant \$12.50 per hour, based upon a four day, eight hour per day work week, for 50 weeks, with a total ceiling price in the amount of \$20,000. The stated purpose of the contract was the administration of the integration of art work into the planning, design and construction of the authority's transit improvements.

This contract expired on August 17, 1979 and on November 4, 1979 the director of construction approved an extension of time to December 15, 1979. This supplemental agreement did not involve any additional funding, but pro-

vided Ms. Rockefeller with the time required to prepare an appropriate transfer of responsibilities to those individuals responsible for a continuation of the MBTA art effort.

On June 16, 1980, the Authority authorized a second Supplemental Agreement to Ms. Rockefeller's contract. This action extended the contract completion date from December 15, 1979 to June 30, 1980 for an amount not to exceed \$16,800. This action increased the contract ceiling amount to \$36,800.

On June 30, 1980, Ms. Rockefeller submitted an invoice requesting payment of \$13,440 and sent a memo informing contract administration that she would be submitting an invoice for direct expenses at a later date.

As of July 1981, the consultant has not submitted an invoice for direct expenses and has been paid a total of \$33,440.

Our review of the billings from this consultant indicated that most of the consultant's time was spent at meetings with architectural and engineering firms involved with the Red Line Extensions, Southwest and Northwest Corredors which are in the design and construction phases. One bill referenced trash can design.

We were unable to find any evidence that this contract produced anything of benefit to the Authority, taxpayers or the commuting public. We therefore conclude that the contract was a waste of money.

Agency's Response:

"The support documentation available to the Authority's files provides a full explanation of the circumstances and need which resulted in each of the actions in question.

"While work under this contract continued beyond the scheduled completion date, such an occurrence is possible in the case of study-type contracts and personal services contracts such as this which do not have "hard" deliverables such as designs, reports, etc., which are awaited by others. When such an event occurs, the office of Contract Administration would become alerted as payment vouchers are reviewed and processed. At that time, action would be initiated as necessary under the circumstances."

10. Filming of the Authority's Transportation Procedures During the Papal Visit: On October 13, 1979, the Authority executed a contract, effective September 21, 1979 with Bostonia Film Productions, Inc. for the filming of the transportation procedures for the October 1, 1979 visit of Pope John Paul II for a sum not to exceed \$85,000.

Our examination revealed that this 30 minute film was only shown to Department of Transportation officials, UMTA officials, and to any interested employee of the Massachusetts Bay Transportation Authority. The consultant was paid \$82,500 for this film. Records available during the audit indicate that this film has been viewed on only three occasions to date. Contracts of this type are not justified or necessary in light of the Authority's growing deficits, service cuts and general inefficiency.

11. Regional Attitudinal Study: On October 28, 1977, the Chairman of the Board of Directors of the MBTA concurred in the award to Research Analysis Corporation of a contract to conduct a Regional Attitudinal Survey to examine the knowledge of and attitudes towards the Authority and its services among user and non-user market groups. The contract was for an estimated amount not to exceed a ceiling of \$44,987.

We cite this contract as another example of doubtful necessity and questionable benefit to the Authority's commuting public. Contracts such as this are frivolous and inappropriate when one considers the financial conditions of the Authority and the communities which have to share in its deficit operation.

Our examination of Contract Administration records and the Treasurer's records revealed that Research Analysis Corporation was paid \$48,947. Executed contract documents authorize only \$44,987. On July 14, 1978 the acting chief executive officer approved the additional \$4,000 cost to the contract.

We recommend that procedures be revised to include more control of contract revision practices so that payments cannot be made in excess of authorized and executed agreements and that some determination of need be made, with the advice of the Advisory Board, before such contracts are entered into.

Agency's Response:

"In response to these comments, the Authority acknowledges that a Supplemental Agreement was not prepared. However, it must be pointed out that the work was properly authorized and was satisfactorily performed in a timely fashion in accordance with the terms of that authorization. The Supplemental Agreement is essentially a document which is used to formally amend the contract. The authority upon which a Supplemental Agreement is developed (the approval instrument) is the Authority's Staff Summary Sheet."

12. Authority's Regulations of Approval Regarding Contract Price

Changes: The Authority's regulations of approvals state that the General Manager is authorized to approve, without prior authorization of the Board, changes in a contract amount not exceeding \$50,000.

The General Manager, as provided by the regulations of the Board of Directors, has delegated to the director of construction the power to approve changes in contract amounts not exceeding \$25,000, as well as the following:

"The General Manager, as provided by the Regulations of the Board of Directors, has delegated to the Regional Project Manager-North, Regional Project Manager-South and Senior Project Manager-Systemwide Improvements, the power to approve, without prior authorization of the General Manager or the Board, the issuance of Change Orders or Extra Work Orders, pursuant to any Agreement previously authorized by the Board or the General Manager, in a cumulative amount not exceeding 10% or \$15,000 above the initial contract price of such Change Order or Extra Work Order would result in exceeding said 10% or \$15,000 limitation or if the issuance of any one such Change Order or Extra Work Order would require an expenditure by the Authority of an amount exceeding \$15,000, it shall not be issued, without prior authorization."

In analyzing the supplemental agreements associated with contract number 087-001 it was noted that four different agreements were authorized within a fifteen day period, three of which were approved on the same date with a cumulative value \$30,399. We recommend that agreements of this type be authorized and paid in compliance with the Authority's Regulations. Further, we consider this delegation of approval authority to be an ineffective means of maintaining control and oversight over contract price changes.

Agency Response:

"As can be seen from the following, three separate authorizations were made by ADC-SI on September 15, 1980, which total \$18,409 (i.e., Suppl. Agr. nos. 8, 9 and 10). However, it should be further noted that each action related to separate, unassociated and specific extra work tasks for which cost proposals were received at different times. Project records reflect the timing of the recognition of the need; scope/cost negotiation; and eventual authorization of the work involved under each Supplemental Agreement as a separate and distinguishable entity. Each proposed undertaking was progressed separately in order to prevent the possibility of any delays associated with one action adversely, and unnecessarily, affecting other actions.

"Based upon the above explanation, the Authority contends that each of the cited authorizations were proper and in accordance with the Authority's Regulations."

13. South Boston Power Plant-Management Indecision: The Authority has wasted over 5.3 million dollars through inept management decisions on modifications and additions to its South Boston Power Plant.

In 1977 the Authority purchased from Mitsui three new steam boilers at a total cost of \$2,264,832. In January 1979 the Authority awarded a construction contract to Thomas O'Connor and Company Inc. for \$3,394,420 to install these units and to furnish and install the auxiliary equipment necessary to operate these steam generators. In March 1980 the then Chairman and Chief Executive Officer directed that all work on this contract be terminated. This order was based on the recommendations of a Power Study Committee formed in

1979 which concluded that the Authority's electric power should be purchased from Boston Edison and that the rehabilitation of the authority owned plant be discontinued.

Payments to the contractor total \$3,049,936 and the work which was approximately 80% complete has been stopped. This payment along with the previous payments to Mitsui (\$2,264,832) represents over 5.3 million dollars wasted by Authority management over the past four years.

In July 1981 the three boilers were advertised in five trade magazines and 435 organizations were contacted to see if they wanted to purchase these units. The Authority has yet to receive any interested responses.

Agency Response

"The Authority did, however, receive at least two responses from power equipment brokers anxious to assist in any future efforts to dispose of the boilers and the auxiliary equipment.

"Further, in order to insure that the value of these units is not adversely affected by their remaining idle for an extended period of time pending eventual disposition--the Authority is preparing to request bids for a contract which will provide for their protection and preservation."

14. Purchase of Blue and Orange Line Cars: A contract was awarded to Hawker Siddeley of Canada for the purchase of 190 rapid transit cars at a cost of \$95,048,268. Seventy of these cars were to be used on the Blue Line and 120 cars on the Orange Line. Engineering services were to be performed by Louis T. Klauder and Associates for quality assurance, testing and warranty acceptance for a fee of \$1,991,147. Delivery of the 70 Blue Line cars was to be completed by September 1979, and Orange Line cars to be all delivered by May 1980. The manufacturer has been paid \$91,632,060 and \$2,548,990 for spare replacement parts. Total payments to Louis T. Klauder as of June 1980 total \$1,778,658.

As of June 1981, all Blue Line cars have been delivered and all cars have been accepted and are in revenue service. Only sixty-six (66) Orange Line cars have been delivered and just six (6) are in revenue service. The other cars are undergoing tests at the Wellington Carhouse.

It is of interest to note that 96% of the car purchase contract has been paid, and only 71% of the cars have been delivered. Also, 90% of the engineering contract has been paid and only 40% of the cars have been accepted after testing.

It is recommended that the authority closely review and monitor both progress payments and performance in order to avoid repetition of the problems experienced in recent years with LRV's.

Agency's Response:

"The SAR/(State Auditor) states that a contract was awarded to Hawker-Siddeley at a cost of \$95,048,268. This figure does not correspond with "base contract" price of \$90,396,115. Further, it does not mention that the contract includes an escalation clause, based on published indices, for both labor and material. The escalation brings the total price for the cars and spare components to approximately \$113,343,759 at present.

"Based on the above prices, our calculations indicate that 83 percent of funds have been paid to Hawker-Siddeley, and our further evaluation clearly indicates the payments to date are reasonable taking into consideration that the Authority has on its property 156 new rapid transit vehicles which represents 82 percent of the total car fleet.

"It is important to note that escalation has been a part of all major transit car contracts throughout the transit industry since 1973. All terms and conditions of the contract, including the payment schedule, were approved by UMTA prior to award of a contract, and these terms and conditions have saved the Authority and UMTA potentially millions of dollars.

"All indications indicate that these cars are running very satisfactorily.

"As regards the report's reference to the scheduled vs. the actual delivery completion dates, we note the absence of any comments relative to the various time-consuming change orders which were necessary or to the 7 1/2 month strike at the Hawker-Siddeley plant--the ultimate effect of which has not yet been determined."

Auditors Further Comment:

The Authority states that 156 cars on "its property" are covered in the original comment. The Auditor noted that only 76 cars (70 Blue Line, 6 Orange Line) were accepted and in revenue service in June 1981. Therefore, we still question the large difference between amount paid and vehicles accepted and in service. The Auditor also notes the original delivery date to have been May 1980 and would hope that a thorough review of any escalation costs beyond that date is conducted.

Financial Statement No. IBalance Sheet

December 31, 1980

Assets

Fixed Assets:

Transportation Property	\$993,229,075		
Less:			
Reserve for Depreciation	<u>210,494,055</u>	\$782,735,020	
Construction in Progress		428,671,010	
Property Held for Expansion		<u>20,600,500</u>	\$1,232,006,530

Current Assets:

Cash in Bank and on Hand		\$ 7,726,158	
Security Investments		21,299,959	
Special Deposits:			
Construction Funds Held by the Bond Fiscal Agent	\$20,569,663		
Federal Grants and Other Special Grants	<u>42,061,566</u>	62,631,229	
Accounts Receivable:			
Commonwealth of Massachusetts	\$184,630,410		
Federal Department of Transportation	6,511,365		
Other	<u>9,443,294</u>	200,585,069	
Materials and Supplies		15,673,670	
Prepaid Expenses		1,338,140	309,254,225
Deferred Charges			<u>10,514,940</u>
			<u>\$1,551,775,695</u>

Liabilities and Grants

Long Term Debt:

Held by Boston Metropolitan District	\$ 91,253,780		
MBTA General Transportation System Bonds	<u>370,250,000</u>	\$461,503,780	
Loans Payable to Department of Transportation		<u>52,134,981</u>	\$513,638,761
Current Liabilities:			
Notes Payable		\$195,000,000	
Accounts Payable		27,462,470	
Accrued Liabilities:			
Payroll		1,681,753	
Interest		16,182,025	
Other		<u>9,075,657</u>	249,401,905
Deferred Credits			<u>40,909,238</u>

Financial Statement No. I (Continued - 2)Balance Sheet

December 31, 1980

Grants:

Federal Grants (Less \$66,158,008 Amortization)	\$744,707,442	
Boston Redevelopment Authority (Less \$1,645,556 Amortization)	<u>16,212,010</u>	760,919,452
Unreimbursed Cost of Service		<u>(13,093,661)</u>
		<u>\$1,551,775,695</u>

Financial Statement No. IIComparative Cost of Service and Income Statement

Two Years Ended December 31, 1980

	<u>1980</u>	<u>1979</u>
Operating Expenses:		
Operating Wages and Fringe Benefits:		
Wages	\$140,574,029	\$129,721,199
MBTA Pensions	21,349,749	18,830,410
Social Security Taxes	9,592,495	8,409,994
Workmen's Compensation	3,441,116	2,812,368
Accident and Sickness Insurance	438,416	431,677
Group Life Insurance	694,013	670,677
Blue Cross - Blue Shield	14,403,366	13,590,031
Unemployment Insurance	178,800	267,363
Uniform and Work Clothes	587,473	541,660
Fringe Benefit Cost Capitalized - Credit	(7,588,894)	(5,753,121)
	<u>\$183,670,563</u>	<u>\$169,522,258</u>
Other Operating Expenses:		
Material and Other Items	\$ 30,783,585	\$24,755,274
Injuries and Damages	2,666,762	2,517,339
Interest on Unfunded Debt	16,553,721	11,795,984
Fuel	22,265,512	16,208,764
Taxes (Other than Social Security)	881,531	864,974
Railroad Commuter Subsidy	44,870,592	37,997,194
Local Service Subsidies	1,517,912	1,112,288
Railroad Communter Unreimbursed Cost	2,800,000	(2,800,000)
	<u>122,339,615</u>	<u>\$92,451,817</u>
Fixed Charges:		
Interest on Funded Debt (MTA)	\$ 3,423,192	\$ 3,686,265
Interest on Funded Debt (MBTA)	20,047,186	19,235,046
Payment on Funded Debt (MTA)	2,723,259	2,824,259
Payment on Funded Debt (MBTA)	10,710,000	9,331,173
Cambridge Subway Rental (MTA)	10,308	5,408
Miscellaneous Debits (MTA)	45,692	30,430
Bank Service Charges (MBTA)	24,000	49,752
	<u>\$36,983,637</u>	<u>\$35,162,333</u>
Total Expenses	<u>\$342,993,815</u>	<u>\$297,136,408</u>
Income:		
Revenue from Transportation	\$66,197,081	\$56,727,494
Revenue from Other Railway Operations	2,650,449	2,263,665
Non-Operating Income	13,622,874	13,650,718
Gas and Diesel Tax Reimbursement	478,847	431,431
Reimbursement from Outside District	3,385,982	1,968,721
	<u>\$86,335,233</u>	<u>\$75,042,029</u>

Financial Statement No. II (Continued - 2)Comparative Cost of Service and Income Statement

Two Years Ended December 31, 1980

	<u>1980</u>	<u>1979</u>
Cost of Service in Excess of Income per Authority's "Statement of Net Cost of Service"	\$256,658,582	\$222,094,379
Add:		
Interest on Federal Loans not Assessable Reimbursement for Contracted Passenger Services Outside the District, Carried by the MBTA as an Income Item to Re- duce the Amount Assessable to Other Cities and Towns	2,076,000	3,084,000
Gasoline and Fuel Tax Reimbursed by the State, Carried by the MBTA as Income	3,386,000	1,969,000
The Amount that Depreciation and Amortization Expense Exceeded Bond Payments During the Year	479,000	431,000
Commuter Rail Labor Costs Incurred in 1978 and 1979 but Not Funded by the Advisory Board until 1980	14,414,000	13,948,000
Provision for Light Rail Vehicles	(2,800,000)	2,800,000
	-	2,431,000
	<u>\$274,213,582</u>	<u>\$246,757,379</u>

NOTES TO FINANCIAL STATEMENTS

1. Commuter Rail: On December 27, 1976 the Boston and Main Corporation (B & M) sold to the Massachusetts Bay Transportation Authority (MBTA) its commuter rail lines serving metropolitan Boston (north service), its related rail yards and 84 passenger cars. On January 1, 1977 the B & M entered into a 5 year agreement with the MBTA to operate a commuter service over these lines using the equipment formerly owned by the B & M.

An agreement dated March 13, 1977 between the Authority and the B & M specified that the B & M would also become the operator of the MBTA rail commuter services to the west and southwest of Boston (south service) formerly operated by Conrail. The B & M also signed short term contracts with the Authority in 1978, 1979 and 1980 to upgrade certain rail lines and rail crossings and to extend passenger service from Reading to Haverhill and Fitchburg to Gardner. All of these contracts are on a cost-reimbursable basis with, in most instances, provisions for management and/or incentive fees. The operating agreement for north service contained an incentive fee of \$.10 for each passenger. The agreement for south service contained a management fee of \$250,000 annually plus the \$.10 for each passenger.

The net cost associated with the Commuter Rail Program for 1980 and 1979 follow:

	<u>1980</u>	<u>1979</u>
Commuter Rail Cost	\$56,424,277	\$47,502,273
Less: Passenger Revenue	<u>11,553,685</u>	<u>9,505,079</u>
Net Commuter Rail Expenses	<u>\$44,870,592</u>	<u>\$37,997,194</u>
Commuter Rail Passengers	<u>9,339,015</u>	<u>8,700,000</u>

The MBTA reimburses the B & M for these Net Commuter Rail Expenses and reflects these expenses in its "Statement of Net Cost of Services."

(Financial Statement No. II)

The operating agreement gives the MBTA the right to conduct an audit of the B & M accounts. Under the terms of the contract the MBTA had an accounting firm conduct a review of the system of internal accounting control maintained by the B & M. The results of the latest review were presented in a report dated March, 1979. The MBTA plans to have the 1980-1981 B & M operations reviewed by independent auditors.

2. 1980 Cost of Service in Excess of Income versus 1981 Approved

Budget: On December 23, 1980 the MBTA Advisory Board approved the budget for the 1981 calendar year. A comparative analysis of the 1980 Cost of Service in Excess of Income and the 1981 approved budget follows:

	Year Ending <u>December 31, 1980</u>	*1981 Approved <u>Budget</u>
Total Revenue	<u>\$86,335,233</u>	<u>\$97,933,476</u>
Total Operating Wages and Fringe Benefits	\$183,670,563	\$172,716,620
Total Operating Expenses and Taxes	<u>122,339,656</u>	<u>119,950,397</u>
	<u>\$306,010,178</u>	<u>\$292,667,017</u>
Total Fixed Charges	36,983,637	44,227,860
Total Current Expenses	<u>\$342,993,815</u>	<u>\$336,944,877</u>
Cost of Service in Excess of Income	<u>\$256,658,582</u>	<u>\$239,011,401</u>
Less: State and Federal Assistance:		
Chapter 161A of G.L. (Sec. 28) - MTA	\$ 3,000,000	
Chapter 161A of G.L. (Sec .28) - MBTA	26,524,495	
Chapter 393, Acts of 1979 - MBTA (RR)	2,245,333	
Chapter 329, Acts of 1980 - MBTA (RR)	2,453,941	
Chapter 351, Acts of 1981 - MBTA	105,851,000	
Federal Operating Assistance - Sect. 5	29,328,419	
Total Assistance	<u>\$169,403,188</u>	
Net Assessable Cost of Service - Loss	<u>\$87,255,394</u>	

* Subject to Revisions

3. Comparative General Statistics - 1980 - 1979 - 1978:

	<u>1980</u>	<u>1979</u>	<u>1978</u>
MBTA Employees December 31 -			
Operating	6,115	6,207	5,999
Capital	633	405	555
Collective Bargaining Units	30	28	28
Route Miles - Basic Service	803	800	816
Route Miles - Commuter Rail	357	259	259
Total Annual Passengers:			
Commuter Rail Service	9,339,015	8,700,000	7,840,000
Basic (T) System (estimated)	158,270,000	155,600,000	151,400,000

4. Comments on Comparative Cost of Service (Statement No. II): The

1980 operating expenses of the MBTA have increased by \$76,403,580, or 29% over the 1978 year. A comparative analysis of operating expenses for the years 1978, 1979 and 1980 follows:

	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1978 to 1980</u>	
				<u>Increase</u>	<u>Percent</u>
Wages and Fringe					
Benefits	\$183,670,563	\$169,522,258	\$157,516,003	\$26,154,560	17%
Fixed Charges	36,983,637	35,162,333	33,087,252	3,896,385	12
Interest on Un-					
funded Debt	16,553,721	11,795,984	7,280,540	9,273,181	127
Railroad Commuter					
Subsidy	44,870,592	37,997,194	31,033,826	13,836,766	44
Materials and					
Other Items	30,783,585	24,755,274	21,622,743	9,160,842	42
Fuel	22,265,512	16,208,764	12,261,738	10,003,774	81
Other	7,866,205	1,694,601	3,788,133	4,078,072	108
Totals	<u>\$342,993,815</u>	<u>\$297,136,408</u>	<u>\$266,590,235</u>	<u>\$76,403,580</u>	29

5. Federal Grants and Loans: Since the passage of the Urban Mass Transportation Act of 1964, Federal assistance approved for the MBTA amounted to \$1,840,781,382, of which \$983,375,398 has been received as of December 31, 1980.

An analysis of this assistance follows:

	<u>Federal Participation</u>	<u>Received to Date</u>
Capital Expansion Grants	\$1,661,373,613	\$804,243,592
Loan Grants - Rail Aquisitions	43,672,750	43,672,750
Demonstration Programs	702,797	685,441
Training Programs	285,550	266,613
Operating Assistance	134,746,672	134,507,002
	<u>\$1,840,781,382</u>	<u>\$983,375,398</u>

6. Federal Operating Assistance Grants: Section 5 of the Urban Mass Transportation Act of 1964, as amended by the National Urban Mass Transportation Act of 1974, provided a six-year Mass Transportation Assistance Program for urbanized areas apportioned on the basis of a statutory formula. Urbanized areas may use Section 5 funds by developing specific capital assistance and/or operating assistance projects under the statutory requirements of the Act, as defined.

The Authority has been designated the primary recipient for the Section 5 operating assistance of the Boston urbanized area. The Federal Public Transportation Act of 1978 extended the assistance through 1982 and revised the formula for apportioning funds to urbanized areas and limited certain amounts of the apportionment to specific purposes. For 1980 and 1979, Federal operating assistance amounted to \$29,328,419 and \$27,422,397, respectively.

7. Pension Costs: As shown on Financial Statement No. II pension costs for the years ended December 31, 1980 and 1979 were \$21,349,749 and \$18,830,410 respectively. The MBTA funds its pension costs currently. The pension agreement provides that the current level of the MBTA contribution together with the members' contributions is intended to provide for current costs and interest on the unfunded past service costs. The Authority is not legally obligated to fund the actuarial cost of future benefits to present and retired employees.

Under the current pension plan agreement, the MBTA is required to pay 12 3/16% of the total payroll of employees who are members, and the members pay 8 1/16% of their compensation.

The actuarially computed value of vested benefits, based on the December 31, 1979 actuarial report, was \$287,545,000. As of December 31, 1979,

the net assets available for benefits were \$206,795,000, and the actuarially computed value of vested benefits exceeded the net available assets by \$80,750,000.

Supplementary Schedule No. IStatus of Total Funded Debt

December 31, 1980

	Amount Outstanding <u>December 31, 1980</u>
Refunding Bond:	
Original Debt, Refinanced August 3, 1949	\$ 39,918,372*
Rapid Transit Bonds:	
Subway etc. Purchased from City of Boston, August 3, 1949	23,595,408*
Construction Bonds:	
Rapid Transit Subway Alterations and Off- Street Parking	22,176,000*
Equipment Serial Bonds	5,564,000*
MBTA Series A Transportation - Bonds - 1967:	
Express Service (Section 23-1)	51,300,000
Railroad Aid (Section 23-2)	700,000
Buses and Other Purposes (Section 23-3)	-
Garage and Other Purposes (Section 23-3)	1,350,000
Other Capital Costs (Section 23-4)	17,550,000
MBTA Series A Transportation Bonds - 1970:	
Authorization - Article II (Section 201):	
Express Service (Section 23-1)	46,100,000
Buses and Other Purposes (Section 23-3)	550,000
Cambridge Subway Purchase Chapter 161A and 513 Acts of 1970	-
MBTA Series A Transportation Bonds - 1972:	
Express Service (Section 23-1)	27,580,000
Bus Aquisition (Section 23-3)	1,160,000
Bus Garages (Section 23-3)	660,000
MBTA Series A Transportation Bonds - 1974:	
Express Service (Section 23-1)	60,600,000
Buses and Other Purposes (Section 23-3)	1,800,000
MBTA Series A Transportation Bonds - 1977:	
Express Service (Section 23-1)	72,600,000
MBTA Series A Transportation - Bonds - 1979:	
Express Service (Section 23-1)	58,300,000
Bond Anticipation Notes - 1980:	
Other Capital Costs	30,000,000
	<u>\$461,503,780</u>

* The details of these issues are contained in the audit report of the Boston Metropolitan District Number 81-9-A-581 issued by the Department of the State Auditor as of December 31, 1980.

-36-

Supplementary Schedule No. IIMassachusetts Bay Transportation AuthoritySchedule of Construction Contracts in Effect

January 1, 1980 to December 31, 1980

	Number of Contracts	Award	Extras	Underruns	Adjusted Contract Amount	Approved Payments		Retained
						Current	To Date	
Boston-San Francisco (LRV's) Engineering and Plant	1	\$ 44,284,135	\$ 8,440,966	-	\$ 52,725,101	-	\$ 43,012,567	-
Maintenance	5	3,816,987	302,215	-	4,119,202	\$ 2,310	3,582,381	\$ 254,589
Green Line Improvements	4	14,140,833	187,838	-	14,328,671	611,092	8,807,615	320,791
Haymarket - North Extension	2	11,599,315	1,408,931	-	13,008,246	409,009	12,728,879	210,405
Plant Improvements	18	14,296,283	663,661	-	14,959,944	1,623,532	11,017,769	556,407
Station Modernization	3	6,200,456	147,526	-	6,347,982	62,244	6,276,084	43,153
South Shore	10	60,892,268	5,435,597	-	66,327,865	11,760,145	52,888,677	1,814,838
Yards and Shops	6	31,427,028	607,922	-	32,034,950	2,224,660	28,333,579	116,460
South Cove Tunnel	1	20,488,660	-	\$111,909	20,376,751	5,015,400	19,821,262	253,791
Red Line Northwest Extension	12	316,805,197	677,056	-	317,482,253	54,584,091	92,994,738	4,183,909
Safety Improvements	2	1,749,703	-	-	1,749,703	28,847	187,518	-
Midland Branch Restoration	4	10,503,958	792,735	-	11,296,693	680,531	1,735,179	15,482
South Station Interim Bus Terminal	1	1,051,000	-	-	1,051,000	998,450	998,450	52,550
Restoration of Orange Line Structure	1	158,400	-	5,000	153,400	9,531	153,399	1
Power Improvements	6	35,570,343	168,784	-	35,739,127	12,779,478	14,300,191	204,532
Transit Efficiency Program	2	2,521,610	7,165	-	2,528,775	1,634,200	1,858,381	62,262
Orange Line Relocation	7	58,748,737	-	70,430	58,678,307	4,873,229	4,863,229	223,300
Rehab of Everett Maint. Facility - Phase I	1	352,181	-	-	352,181	-	-	-
C.R.I.P. II*	1	642,687	36,695	-	679,382	324,219	324,219	17,064
Track Improvements	2	4,231,280	-	-	4,231,280	1,486,190	1,486,190	78,221
C.R.I.P. III*	2	10,828,274	-	-	10,828,274	3,219,455	3,219,455	177,458
	<u>91</u>	<u>\$650,309,335</u>	<u>\$18,877,091</u>	<u>\$187,339</u>	<u>\$668,999,087</u>	<u>\$102,326,613</u>	<u>\$308,589,762</u>	<u>\$8,585,213</u>

* Commuter Rail Improvement Program

-37-

Supplementary Schedule No. IIIMassachusetts Bay Transportation AuthorityConstruction DirectorateSummary Schedule of
Professional Service Contracts Awarded

January 1, 1980 to December 31, 1980

<u>Project Description</u>	<u>Number of Contracts</u>	<u>Awarded Agreement Amount</u>	<u>Supplemental Agreements</u>	<u>Adjusted Agreement Amounts</u>	<u>Approved Payments 12-31-80</u>	<u>Retainage</u>
Commuter Rail	3	\$ 541,585	-	\$ 541,585	\$ 274,684	\$ 13,212
Unified Work Program	2	608,271	-	608,271	118,150	6,037
Power Improvements - PH. I, II & III	1	1,750	-	1,750	1,750	-
Red Line Northwest	6	399,954	-	399,954	129,838	5,478
Transit Efficiency	1	178,019	\$51,876	229,895	196,944	8,626
Southwest Corridor Project	4	712,225	-	712,225	275,904	13,918
CRIP III	1	654,900	-	654,900	77,854	3,879
Plant Improvements Phase IV Group 2	4	856,501	12,000	868,501	223,931	11,594
Tunnel Rehabilitation	1	988,024	4,172	992,196	853,072	35,975
South Station Urban Initiatives	2	1,168,457	-	1,168,457	571,098	28,398
Axle Stress Investigation	1	49,402	-	49,402	-	-
	<u>26</u>	<u>\$6,159,088</u>	<u>\$68,048</u>	<u>\$6,227,136</u>	<u>\$2,723,225</u>	<u>\$127,117</u>

SUPPLEMENTARY INFORMATION

Audit Review: Prior to the official release of this report, a draft was reviewed with Mr. James F. O'Leary, the General Manager of the Authority, and Mr. John R. Launie, the Treasurer - Controller of the Authority.

1. Board Members and Executive Officers: On December 8, 1980 the legislature approved Chapter 581 of the Acts of 1980. This law reorganized the management structure of the Authority.

This statute created two Board of Directors' positions and a General Manager's position. As of December 31, 1980 these positions were vacant.

On February 9, 1981 the Governor appointed Mr. John F. Dator of Somerset to the Board of Directors and on February 26, 1981 Mr. Henry J. Piechota of Longmeadow was also appointed by the Governor to the Board of Directors.

On April 17, 1981 the position of General Manager was filled by Mr. James F. O'Leary.

2. Real Cost to Taxpayers for MBTA Operations: The assessable deficit for 1980 is \$87,255,394; however, the total cost to be borne by the taxpayers amounts to \$271,553,430, as follows:

Paid by the Taxpayers of the 79 Cities and Towns (See Note No. 2)	\$87,255,394	
Estimated Interest on Borrowings of the Commonwealth in Anticipation of Deficit Assessments	<u>14,400,000</u>	\$101,655,394
Boston Metropolitan District Expenses Paid by Taxpayers of the Commonwealth:		16,000
Direct Financial Assistance:		
Additional Contract Assistance -		
Chapter 351, Acts of 1981	\$105,851,000	
Chapter 329, Acts of 1980	2,453,941	
Chapter 393, Acts of 1979	2,245,333	
MTA Debt Service	3,000,000	
MBTA Debt Service	<u>26,524,496</u>	140,074,770
Gas Tax Reimbursement		478,847
Federal Operating Assistance:		
Section 5, Urban Mass Transportation Act		<u>29,328,419</u>
Total Cost To Be Borne by Taxpayers		<u>\$271,553,430</u>

3. Estimated 1982 Fiscal Year Assessment Based on 1980 Net Assessable

Cost of Service on the 79 Cities and Towns: The total estimated 1980 assessment of \$101,655,394 from MBTA operations is composed of the following:

Net Assessable Deficit - 1980 Year (See Note No. 2)	\$ 87,255,394
Estimated Interest Charged by the State Treasurer on Temporary Borrowings	<u>14,400,000</u>
	<u>\$101,655,394</u>

This preliminary estimate was prepared by the Authority's Treasurer-Controller Department on February 23, 1981. Since the authority is revising its costs allocations for assessing costs on the 79 Cities and Towns, the final estimate was not available at the conclusion of the audit. The final assessment will be completed and forwarded to the State Treasurer by November, 1981.

<u>Cities and Towns</u>	<u>Total Actual 1979 Assessment</u>	<u>Total Estimated 1980 Assessment</u>
Arlington	\$ 2,167,115	\$ 2,428,800
Ashland*	144,009	156,700
Bedford	203,268	221,800
Belmont	1,058,166	1,193,900
Beverly	561,314	607,900
Boston	38,996,641	42,907,400
Braintree	653,653	722,400
Brookline	3,219,294	3,643,000
Burlington	386,747	428,400
Cambridge	5,114,579	5,778,200
Canton	254,474	278,400
Chelsea	977,094	1,065,300
Cohasset*	93,818	102,400
Concord	213,649	232,300
Danvers	410,859	444,000
Dedham	489,065	529,200
Dover*	71,773	78,200
Duxbury*	96,548	115,100
Everett	1,507,910	1,673,100
Framingham	827,116	901,600
Hamilton	110,585	120,900
Hanover*	150,536	166,300
Hingham	315,493	350,500
Holbrook	227,351	246,900
Hull	153,934	167,800
Lexington	580,034	629,300
Lincoln	139,220	149,400
Lynn	1,426,277	1,559,200
Lynnfield*	174,462	190,000

<u>Cities and Towns</u>	<u>Total Actual 1979 Assessment</u>	<u>Total Estimated 1980 Assessment</u>
Malden	2,001,125	2,297,000
Manchester	68,153	74,700
Marblehead	366,487	397,200
Marshfield*	216,458	248,800
Maynard*	139,994	151,500
Medfield*	130,524	142,600
Medford	2,491,184	2,803,600
Melrose	635,663	686,100
Middleton*	60,736	66,100
Millis*	82,351	92,300
Milton	960,816	1,091,000
Nahant	103,457	113,300
Natick	461,199	497,900
Needham	472,171	508,600
Newton	3,019,020	3,391,500
Norfolk	63,908	73,500
North Reading*	194,788	211,200
Norwell*	129,469	143,500
Norwood	512,144	554,900
Peabody	723,500	782,400
Pembroke*	179,543	200,000
Quincy	2,412,345	2,645,300
Randolph	528,983	582,000
Reading	397,304	431,100
Revere	1,873,353	2,145,500
Rockland*	221,284	240,000
Salem	609,163	666,200
Saugus	546,522	601,400
Scituate*	235,875	256,800
Sharon	224,590	245,900
Sherborn*	52,194	58,394
Somerville	3,443,967	3,824,800
Stoneham*	346,744	377,000
Sudbury*	199,782	217,900
Swampscott	280,776	308,100
Topsfield*	78,796	86,600
Wakefield*	453,725	494,100
Walpole	271,655	296,900
Waltham	878,018	959,900
Watertown	1,337,603	1,480,400
Wayland*	209,625	224,000
Wellesley	406,836	440,600
Wenham*	58,017	63,000
Weston	163,171	177,600
Westwood	234,190	255,700
Weymouth	1,016,536	1,109,300
Wilmington	245,336	267,100
Winchester	386,983	417,300
Winthrop	449,383	481,500
Woburn	629,312	684,900
	<u>\$91,929,742</u>	<u>\$101,655,394</u>

- * At the present time there are 23 communities out of the 79 cities and towns that do not have MBTA service, subsidized railroad service or subsidized bus service. Each of these 23 communities does, however, pay an assessment for these services.

4. Administrative Payroll: A comparative analysis of the Authority's executive, monthly, and weekly payrolls for May 12, 1978, June 3, 1980, and May 27, 1981 follows:

	<u>May 27, 1981</u>	<u>June 3, 1980</u>	<u>May 12, 1978</u>	(Decrease) June 3, 1980 to May 27, 1981	Increase May 12, 1978 to May 27, 1981
Employees:					
Executive	274	323	237	(49)	37
Monthly	279	330	263	(51)	16
Weekly	<u>378</u>	<u>395</u>	<u>360</u>	<u>(17)</u>	<u>18</u>
Total	<u>931</u>	<u>1,048</u>	<u>860</u>	<u>(117)</u>	<u>71</u>

	<u>May 27, 1981</u>	<u>June 3, 1980</u>	<u>May 12, 1978</u>	(Decrease) June 3, 1980 to May 27, 1981	Increase May 12, 1978 to May 27, 1981
Administrative:					
Annual					
Payroll	<u>\$24,172,002</u>	<u>\$26,482,481</u>	<u>\$18,470,938</u>	<u>\$(2,310,479)</u>	<u>\$5,701,063</u>

The total number of MBTA administrative employees in 1981 represents a decrease of 13% over 1980 and an increase of 8% over 1978.

During the corresponding periods annual administrative payroll charges in 1981 decreased 10% over 1980 charges and increased 24% over 1978 payroll charges.

5. Revenue Fleet Availability: We reviewed the 1980 weekly MBTA availability reports for street cars, rapid transit cars, buses and trackless trolleys. The results of this review follow:

<u>Type of Service</u>	<u>Total Average Daily Fleet</u>	<u>Average Daily Fleet Available For Service</u>	<u>% Available for Daily Service</u>
Street Cars	260	134	51
Rapid Transit Cars	351	252	71
Buses and Trackless Trolleys	1,148	821	71

Our review of weekly MBTA trip schedules during 1980 for these same service lines revealed the following:

<u>Type of Service</u>	<u>Total Average Trips Scheduled Daily</u>	<u>Average Daily Trips Completed</u>	<u>% Completed Daily</u>
Street Cars	945	901	95
Rapid Transit Cars	1,809	1,762	97
Buses and Trackless Trolleys	8,193	8,048	98

6. D.P.U. Bus Inspections: Section 8 of Chapter 159A of the General Laws, as amended, requires that the Department of Public Utilities inspect all MBTA buses on an annual basis. Prior to October 1, 1980 the D.P.U. performed a full physical inspection on each bus including brakes, lights, glass, exhaust pipes, tires, fire extinguishers and all other major mechanical parts.

Mr. John J. White, the Director of Operations, has stated to us in a memo that,

"Each active bus had been issued a D.P.U. permit with an expiration date of September 30, 1981."

7. MBTA Retirement Fund Performance Record: An analysis of the Authority's Retirement System Financial Statements since 1975 revealed the following:

	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>
Annual yield based on cost of securities	6.59%	5.56%	4.73%	4.22%	3.67%
Annual yield from gain (loss) on sale of securities	1.96%	.06%	(.95%)	(1.35%)	(2.52%)
Total actual annual yield	8.55%	5.62%	3.78%	2.87%	1.15%
Securities at cost (book)	\$216,420,424	\$200,550,647	\$169,860,128	\$153,517,377	\$138,329,643
Securities at market value	\$206,230,330	\$194,936,000	\$159,584,229	\$157,582,121	\$125,568,817

8. 1980 Legislation: The statutory references in this report include legislation enacted by the 1979-1980 session of the General Court. Highlights of some of the legislation passed follow:

Chapter 163 - limits the length of motor buses which may be operated by the Massachusetts Bay Transportation Authority.

Chapter 501 - indicates terms of certain notes issued by the Commonwealth of Massachusetts to finance certain payments to the Massachusetts Bay Transportation Authority.

Chapter 504 - grants certain easements and interests in land to the Massachusetts Bay Transportation Authority for construction of the Red Line Extension.

Chapter 581 - Provided for the following:

1. Section 18 authorized the Authority to exceed the 1980 approved budget in order to provide regular services through December 31, 1980.
2. Section 3 provided for a restructuring of the Authority's management.
3. Section 4 restructures the Advisory Board.
4. Section 11A provided for the outer 65 cities and towns to contract with private carriers.
5. Various management reforms.

9. Design Engineering Services - Southwest Corridor and Northwest Corridor: The Southwest Corridor project and the Northwest Corridor project currently are the Authority's major undertakings. The design cost for the Southwest project as of July 1981 is approximately \$74,126,124. This consists of contracts 065-018, \$47,240,304; 065-019, \$13,678,836; and 065-020, \$13,206,984. The design and engineering costs for the Northwest project is \$26,931,939. This consists of contracts 065-001, \$9,249,538; 065-002, \$4,454,328; 065-003, \$3,392,765; 065-004, \$1,733,522; 065-005, \$4,389,336; and 065-006, \$3,712,450.

10. Office Rentals:

1. 50 High Street: The Authority is presently occupying approximately 74,000 sq. ft. of space on the 4th, 5th, 7th and 9th floors at 50 High Street, Boston. This area is leased from Meredith and Grew Management Inc. at a cost of approximately \$45,200 per month. It is planned that the Authority will move into the Park Square Transportation Building upon its completion.

2. 500 Arborway: The Authority had originally moved from this location of approximately 60,350 sq. ft. and this building was to be sold in 1978; however, the sale was not completed. Presently, the building is occupied by the personnel working on the Southwest Corridor Project and a portion of the building is rented by a credit union.

3. 131 Clarendon Street: The Authority leased the entire fourth floor of this building in November 1976 through November 1979 at an annual cost of \$35,000. This lease was extended through November 1982 at an annual cost of \$42,000. Until February 1980, this 7,000 sq. ft. area was occupied by personnel involved in the construction of the Southwest Corridor; however, in February, this office was relocated to 500 Arborway.

The Authority has also leased 3,000 square feet of the sixth floor of this building through December 31, 1980 at an annual cost of \$22,260. This lease was broken on June 15, 1981 after a six month extension. The Educational and Training Program personnel that occupied this area moved back down to the fourth floor of 131 Clarendon Street.

11. Defective Third Rail Heaters: In 1975, 1,490 third rail heaters were purchased from Singer Corporation for \$72,593. Comstock-Manzi was awarded a contract to install 699 of these heaters on the Red Line for \$399,400. Contract extras of \$436,813 (109%) increased this contract to \$836,213. Of

these extras \$266,459 was negotiated for the installation of 481 additional heaters on the rail into the Cabot Maintenance Center and Quincy dead end. The remaining amount was paid because these heaters, as supplied by Singer Corporation, proved defective during their operation and had to be removed and returned for repair.

This contract was finalized during the current audit period. A total of \$836,213 was spent on this contract.

As of the audit date, the MBTA is still preparing legal action to recover \$147,642 in costs from Singer Corporation. This amount represents all costs related to the defective heaters which required maintenance work.

12. Charlestown Bus Garage: DeLeuw, Cather Co. was awarded Design Contract YS-036 for \$543,000 for work on the Charlestown Bus Garage and the Repair Building. Supplemental Agreements amounting to \$300,750 increased the contract to \$843,750. Payments to date total \$839,765. The construction contract was awarded to Jackson Construction Co. for \$9,846,720. Contract change orders and overruns have increased the contract to \$10,739,347, and \$10,264,164 has been paid as of December 1980. The facility has been completed but not accepted and is presently being utilized.

A "punch list" exists which includes the completion of the interior cleaning system, bus washer, and electrical mechanical room. A total of \$70,385 is being retained.

Agency's Response:

"The designer on this project has submitted to the Authority a claim for payment for extra work which it is contended was necessary for the completion of the work. This matter is now under review by the Authority with a view towards achieving a settlement.

"Although the project was substantially complete in February 1980, it has not yet been accepted by the Authority due to the contractor not yet completing in the "Punch list" items. Additionally, the contractor has

presented a claim for payment for unauthorized expenses incurred during the course of the work. This entire matter is being evaluated by the Authority, and the contractor has been requested to furnish supportive documentation to substantiate his claim."

13. Force Account Agreements: For the audit period January 1, 1980 through December 31, 1980, force account agreements were reviewed as to the amount of the agreements, amendments thereto and for supplemental agreements. As of December 31, 1980 there are a total of 28 force account agreements in effect totaling \$7,888,143. Amendments of \$1,652,358 increased the award amount to \$9,540,501. As of December 31, 1980 \$6,341,345 has been paid. Of the 28 contracts in effect, 4 contracts had additional supplemental agreements and/or amendments. These contracts were handled in phases.

A schedule of activity from January 1, 1980 through December 1980 follows:

Massachusetts Bay Transportation AuthorityConstruction DirectorateSchedule of Force Account Agreements

January 1, 1980 to December 31, 1980

	<u>Number of Agreements</u>	<u>Contract Agreement Amount</u>	<u>Amendments</u>	<u>Adjusted Agreement Amount</u>	<u>Approved Current Audit.</u>	<u>Payments To Date 12-31-80</u>
Agreements in Effect Beginning of Audit Period	25	\$7,156,630	\$1,719,632	\$8,876,262	\$2,522,527	\$6,858,856
Add: Agreements Executed During Current Audit Period	<u>8</u> 33	<u>1,584,952</u> \$8,741,582	<u>-</u> \$1,719,632	<u>1,584,952</u> \$10,461,214	<u>356,956</u> \$2,879,483	<u>356,956</u> \$7,215,812
Less: Agreements Finalized During Current Audit Period	<u>5</u>	<u>853,439</u>	<u>67,274</u>	<u>920,713</u>	<u>16,340</u>	<u>874,467</u>
Agreements in Effect - End of Audit Period	<u>28</u>	<u>\$7,888,143</u>	<u>\$1,652,358</u>	<u>\$9,540,501</u>	<u>\$2,863,143</u>	<u>\$6,341,345</u>

11.

S-9/A

Comm. from Paul E. Healy, City Clerk, transmitting comm. from John J. Finnegan, State Auditor, enclosing a copy of the financial report of the Mass. Bay Transportation Authority for the year 1980.

In City Council,

February 22, 1982