

# Benefits Of Expanded Scope Auditing At The Local Level

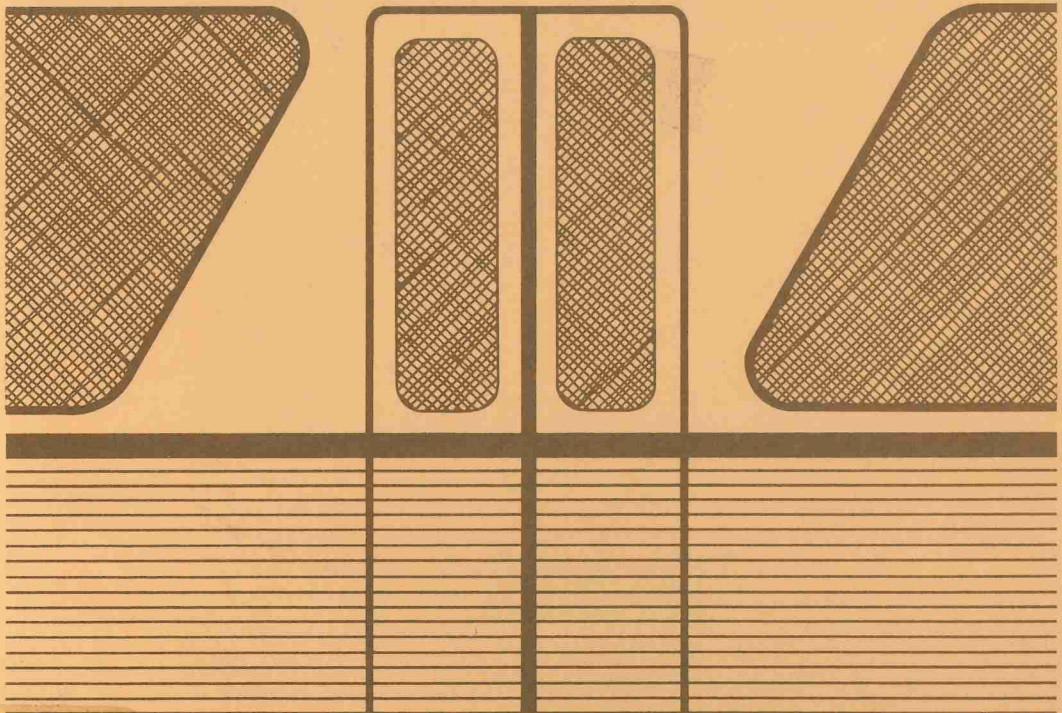
How an expanded scope audit helped initiate improvements in the public transportation system in Houston, Texas

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Study

Audit Standards  
Supplement Series  
No.12

By The  
Comptroller General  
Of The United States

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# Benefits Of Expanded Scope Auditing At The Local Level

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scope audit helped  
initiate improve-  
ments in the public  
transportation system  
in Houston, Texas

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Case Study



Audit Standards  
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Comptroller General  
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RENOFES AATLL

## PREFACE

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Our system of government today rests on an elaborate structure of interlocking relationships among all levels of government for managing public programs. This increased complexity has resulted in a demand for information about government programs. Public officials, legislators, and the public want to know whether governmental funds are handled properly and in compliance with laws and regulations and whether government programs are being conducted efficiently and effectively.

This demand for information has expanded the scope of government auditing so that it no longer concerns primarily financial operations. Instead, government auditing now also concerns whether government programs are achieving their objectives, are doing so economically and efficiently, and are complying with laws and regulations.

In 1972 the General Accounting Office issued the "Standards for Audit of Governmental Organizations, Programs, Activities & Functions." These standards provide for a scope of audit that includes one or more of these elements.

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### **Financial and Compliance**

Were financial operations properly conducted, financial reports presented fairly, and laws and regulations complied with?

### **Economy and Efficiency**

Was the entity managing its resources, such as personnel, property, and space, economically and efficiently? If not, why?

### **Program Results**

Were desired results or benefits being achieved? Were the objectives established by the legislature or other authorizing body being met? Were alternatives considered which might yield desired results at lower cost?

The principal objective of the standards is to help Federal, State, and local officials improve audit quality.

Since issuing the standards, GAO has issued some publications (see inside front cover) demonstrating how auditing can improve the efficiency and effectiveness of government operations and programs.

This booklet illustrates how auditing helped city officials improve their public transportation system, which in turn increased benefits to citizens.



Comptroller General  
of the United States  
November 1979

# CITY OF HOUSTON

TEXAS

KATHRYN J. WHITMIRE  
CITY CONTROLLER

April 25, 1979

The Honorable Elmer B. Staats  
Comptroller General of  
the United States

Dear Mr. Staats:

On behalf of the citizens of the Houston area, as well as for myself, I wish to thank the United States General Accounting Office for the great assistance it extended to us during the joint audit of Houston's public transportation program. I have delayed in expressing this appreciation only because it is, even now, too soon to assess completely the full impact of the joint audit.

Although this kind of broad-scope operational auditing is not entirely new to Houston, many public managers and officials remain unfamiliar with the vital role such audits play in sound management of the public sector. Members of the Texas Legislature (which passed the legislation creating our new Metropolitan Transit Authority), members of Houston's City Council (which appointed most of the MTA Board of Directors) and others who have not previously received our City Auditor's reports have requested copies. It has been made manifest that broad-scope auditing can be as essential at the local level of government as it is for the federal government.

In my work as the elected Controller of the City of Houston, I am regularly impressed with the need for this sort of independent, unbiased appraisal of governmental operations. Members of the Texas Legislature are now considering requirements for regular operational audits of MTA to be done in the future.

Of course, the end result of any broad-scope audit depends upon the willingness of managers and public officials to implement audit recommendations. The positive responses by the managers of MTA described more fully in the case study encourage me in the hope that the citizens of Houston will see significant improvement in public transportation in the years to come. Equally important, in my opinion, is the impetus the joint audit, and this case-study, should give to the use of broad-scope auditing in Houston and other cities around the country.

Sincerely,



Kathryn J. Whitmire, CPA  
City Controller

KJW:mc

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## CHAPTER 1

# INTRODUCTION

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Expanded scope auditing has been used for years, and experience has shown that it can help government managers improve the quantity and quality of public services. The benefits of such auditing were demonstrated when representatives of the Houston City Controller's Office and GAO's Dallas regional office audited Houston's public transportation system.

The City Controller, through the Southwest Intergovernmental Audit Forum, asked GAO to participate with her staff in evaluating a federally assisted program administered by the city. She believed such an audit would improve city operations and would be a valuable learning experience for her staff so that expanded scope audits could be conducted more effectively in the future. From GAO's perspective, the audit provided an excellent opportunity to (1) increase the use and acceptance of expanded scope audits at the local level by demonstrating their usefulness and (2) further the intergovernmental cooperation being encouraged through the audit forums.

After preliminary discussions and data gathering, the audit participants selected Houston's public transportation system for audit. This system consisted mainly of the bus system and had extensive public interest, large funding requirements, and increasingly complex activities.

The audit consisted of two stages. (App. I contains the framework followed by the audit team.)

First, a survey was conducted to identify issues and problem areas warranting further review and to decide the extent and approach to the detailed review. During the survey, city officials' views were obtained on troublesome matters that concerned them but on which they lacked reliable information.

The survey results led to the second stage, an audit of specific problems in Houston's bus system. The objective was to identify the problem causes and to make recommendations to alleviate the problems.

The remainder of this case study highlights the results of the audit. Chapter 2 describes the audit approach. Findings, recommendations, and actions taken or promised are discussed in chapter 3. Chapter 4 discusses the audit benefits to city and bus system officials.



## CHAPTER 2

# Audit Approach

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Audit resources are scarce. Thus, how to effectively use them is a very important decision for government managers and auditors. Audit efforts should be directed toward areas and programs that will produce the greatest benefits to government managers and the public.

Some situations may warrant performing all three elements of auditing—financial and compliance, economy and efficiency, and program results; others, such as this one, may focus on specific issues and problems within one element. The survey helps to determine where audit resources and efforts should be directed.

The survey is a fast process to gather information, without detailed verification, on the activity or program being examined. Through a survey the auditor gains an understanding of the activity or program, identifies problems warranting further review, and decides whether an expanded scope audit is feasible or desirable. The concepts and procedures for the survey are discussed in GAO Audit Standards Supplement No. 11, entitled "The Audit Survey—A Key Step in Auditing Government Programs."

## AUDIT SURVEY

In auditing the Houston bus system, the audit team performed a survey to identify the issues and problem areas warranting further work. Survey findings disclosed that the system was not adequately meeting the area's public transportation needs. Also, the system

- required about \$32 million to cover 1978 operating costs and included over \$150 million in Federal funds in the pipeline for capital improvements;
- received constant criticism from the news media and frequent complaints from citizens; and
- required close coordination among Federal, State, and local groups to manage the system.

City and bus system officials expressed to the team a desire to improve system operations and identified problem areas warranting additional review. The team expanded their survey to review the

- relationship between the city and the firm managing the bus system and between the labor union and the firm;
- bus maintenance facilities, equipment, work force, and operating policies and procedures;

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- future regional transit plans;
  - personnel practices (e.g., recruiting, promoting, training, and keeping qualified personnel);
  - bus scheduling and dispatching; and
  - acquisition of new buses and the construction of new bus maintenance facilities.

As the survey progressed, the team found that the dependability of bus service was far below the city's and the public's desired levels, mainly because of problems in managing the bus system and in maintenance activities.

The team, at the completion of the survey, summarized the results. This summary included the team's observations and recommendations and pointed out

- the problems and rationale for pursuing them in more depth,
- information developed during the survey,
- estimates of time and resources for additional work, and
- the target date for completing it.

## AUDIT

The survey results were discussed with city officials. On the basis of these discussions, the participating audit organizations—GAO and the City Controller—decided to audit the bus system, concentrating on management and maintenance activities. The audit focused on identifying the problem causes and on identifying alternatives that might correct these problems. Upon completion of the audit, the findings and recommendations were formally reported by the City Controller to city and bus system officials.<sup>1</sup>

Chapter 3 presents some of the major findings, along with recommendations and actions taken by city and bus system officials. It also discusses several problems involving management of the bus system, as well as maintenance problems which reduced the efficiency and effectiveness of operations.

<sup>1</sup>"Houston's Public Transportation System: Management Plans and Maintenance Operations Must Be Improved To Provide Dependable and Comfortable Bus Transportation," Feb. 12, 1979.

## Audit Results

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The bus system was not adequately meeting the area's public transportation needs. This was caused, in part, by divided management responsibilities and lack of objectives and goals for the system and by weaknesses in maintenance activities. The latter resulted from inadequately trained personnel, inadequate facilities and equipment, and ineffective operating policies and procedures.

### BUS SYSTEM MANAGEMENT

Problems in managing the system resulted from (1) divided management responsibility, (2) the lack of objectives and goals for the bus system, and (3) the lack of an adequate system to measure the bus system's effectiveness.

In 1974 Houston purchased the privately owned bus company, partly with Federal mass transit funds. At the time of purchase, the employees were under union contract. Under Texas State law, cities may not engage in certain collective bargaining nor may they recognize the right of public workers to strike. However, the Federal Urban Mass Transportation Act requires that the existing rights of employees, including collective-bargaining rights, be preserved when Federal grant funds are used to purchase and operate transportation systems. Therefore, to comply with the apparently conflicting State and Federal laws, the city contracted with a private management firm to serve as the legal employer of the bus system personnel, to manage daily bus operations, and to negotiate with the union.

After the public takeover, there were some accomplishments (e.g., Federal grants for capital improvements were obtained, and park-and-ride service and carpool referral service were initiated), but the audit disclosed that Houston's bus system had not attained the desired level of performance. In August 1978 the citizens of Houston and surrounding areas approved the establishment of a Metropolitan Transit Authority (MTA). In January 1979 the MTA assumed responsibility for the system.

Before January 1979 management responsibility was divided among the city council, the mayor and his assistants, various city departments, and the private firm. That city and bus system officials were experiencing problems in planning, organizing, and controlling the system is not surprising. The contract between the firm and the city also contributed to the problems. The contract did not specify goals and objectives or levels of performance expected of the firm or provide for allowing the city to adequately monitor the firm's performance under the contract.

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Also there was no adequate system to measure the system's effectiveness. However, there was widespread agreement among city officials that the system's existing level of performance was inadequate.

The establishment of the MTA should alleviate many of the problems by placing overall transit management under one organization. However, additional areas need to be addressed. The team recommended that the MTA

- either directly manage the system or modify the current arrangement with the firm.
- prepare a detailed plan showing the goals and objectives and how and when these will be achieved,
- adopt factors to measure performance, and
- establish a formal reporting system to gather the data necessary to measure progress toward goals.

The MTA took major steps to correct management weaknesses by establishing an organization to manage and coordinate transit activities. The MTA also dissolved the contract with the firm, which resulted in the bus company employees becoming MTA's employees and bus system operations placed directly under MTA management. Additionally, MTA agreed to develop a plan for measuring improvements in bus service and to establish a formal system to gather necessary data for reporting.

## **BUS MAINTENANCE**

On a typical day, many buses broke down and were taken out of service, overloading other buses and interrupting schedules. Additionally, many buses operated with defective components (such as broken air-conditioners), causing discomfort to passengers.

Maintenance weaknesses resulted mainly from (1) inadequately trained personnel, (2) inadequate facilities and equipment, and (3) ineffective operating policies and procedures.

### **Reduction in Workload**

Due to a heavy backlog, supervisors had to devote their time to "catching up" on maintenance rather than to solving the causes for the backlog. The audit team recommended that as a temporary step the workload be reduced to a level which the personnel, facilities, and equipment could

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handle adequately and suggested that the MTA consider contracting out major maintenance functions, such as engine and transmission overhauls.

MTA concurred and entered into an agreement with the union whereby 10 percent of the repair work could be contracted out. MTA subsequently contracted for the overhaul of several transmissions and engines and other work, which resulted in buses being returned to service.

### **Improved Personnel Practices**

The most significant maintenance weakness was the inadequately trained work force. Many mechanics did not have sufficient training and experience. Although the work force had doubled over the previous 2 years, the number of buses operated each day had increased by only 12 percent and they often broke down. Work force productivity was low because of limited efforts to recruit people with mechanical aptitude or experience, low wage rates, poor promotion opportunities, negligible pay differences between high- and low-skill jobs, inadequate training program, and no work incentive system.

The auditors reported these weaknesses to city and bus system officials at periodic briefings. The team felt that as a minimum the following actions should be taken:

- A system should be established to assess the qualifications of the maintenance personnel and reassign the more experienced personnel to the complex and difficult work.
- Mechanical aptitude tests should be used to identify employees with high aptitudes.
- An on-the-job training program should be established for those with high mechanical aptitudes.
- The mechanics' pay scale should be revised to be comparable with that of other mechanics in the area.
- A program should be established to hire experienced mechanics as well as others with high mechanical aptitudes.

Immediately bus system officials:

- Established higher paid mechanic classification levels, which will be filled by hiring or promoting well-qualified mechanics. Promotions to these positions will be based on qualifications rather than on seniority.
- Increased wage rates to a level closer to those paid other mechanics in the area.
- Obtained a mechanical aptitude test for screening all prospective maintenance employees.

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- Established performance incentives, such as training, safety awards, and service incentive pay.
  - Initiated efforts to improve the on-the-job training program and to add a formal classroom training program.
  - Initiated a program to recruit skilled mechanics and people with the necessary aptitudes to become skilled mechanics.

### **Improved Facilities and Equipment**

Both the quality and quantity of Houston's bus maintenance facilities and equipment were inadequate. One of the two maintenance facilities badly needed repair; the other was not equipped or designed for bus maintenance.

Facility and equipment needs had been recognized by city and bus system officials for years, but attempts to fulfill them were hindered by organizational constraints and divided management responsibility. For example, although the roof of the primary maintenance facility leaked so badly that each time it rained work had to be stopped, attempts during the preceding 2 years to repair the roof had been curtailed by the city department responsible for designing building structures.

Establishment of the MTA should reduce many of the organizational problems, because all responsibilities have been placed under one organization. However, facility and equipment problems are severe and will require concentrated attention. The team recommended that the following actions be taken immediately.

- Temporary repairs in the primary maintenance facility's roof should be made.
- Needed maintenance equipment should be acquired.
- Additional facilities for light maintenance that can be modified in a short time should be located.
- Construction plans for a new facility for heavy maintenance should be accelerated.

City and bus system officials, agreeing that maintenance facilities must be upgraded, proposed that

- the primary facility's roof be repaired and the second facility be modified to accommodate bus maintenance,
- an additional facility be procured for light maintenance,
- ways to reduce the planned new maintenance facility's construction time be explored, and
- efforts to procure maintenance equipment and a communications system for the buses be intensified.

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### Improved Maintenance Operating Policies and Procedures

Maintenance efficiency and productivity were severely inhibited because no system had been devised to centrally control or systematically schedule maintenance work, and no feedback system existed to assure managers that needed work was being done. Due to the resulting inefficiencies and an excessive workload, the overall practice was to put as many buses on the road as possible without regard to their overall mechanical condition—as long as there was not a major safety hazard. As a result, only defects that prevented buses from running were repaired and sound preventive maintenance procedures were essentially ignored.

The team recommended that because these policies and procedures inhibited a sound maintenance program, bus system officials

- adopt a policy of making mechanical repairs before putting buses in service,
- establish and enforce a comprehensive preventive maintenance program, and
- develop a work-scheduling system.

The auditors also suggested that persons knowledgeable in such areas as maintenance-workload-scheduling and supply management be consulted to help determine the most appropriate procedures and system.

City and bus system officials agreed with the recommendations. One of the first steps they planned was to hire a consultant to help determine and implement appropriate preventive maintenance activities, an efficient work-scheduling system, and an effective replacement parts operation.



## Audit Benefits

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This audit gave management an independent review of Houston's public transportation system at a critical time in its development. The MTA's assumption of transit activities was accompanied by a commitment to the voters to significantly improve transportation service. The overall success of the audit was enhanced by this timing as evidenced by the following statement from the Executive Director of the MTA.

"The audit has been of tremendous assistance in helping us plan a sound management structure and organization for the future. \* \* \* I am certain that MTA will benefit from the insights of the review."

City and MTA officials were very receptive to and appreciative of the audit. The auditors and officials worked cooperatively throughout the audit, sharing information and ideas. The advantage of this cooperation is exemplified by the corrective actions discussed in the previous chapters, which should improve transit operations and thus increase benefits to the public. These officials felt that the audit had

- provided a much-needed analysis, which was comprehensive and in sufficient depth to result in a useful working document for managers;
- verified problems suspected by management;
- accurately presented the overall transit situation, pinpointed problems and their causes, and offered realistic suggestions for improvement; and
- demonstrated the value of expanded scope auditing in helping government managers attain more efficient and effective operations.

The audit also enhanced the city's ability to conduct expanded scope audits, as evidenced by the following statement from the City Controller.

"This audit confirmed our approach to broad scope auditing and taught us new audit techniques that should be very helpful to us in future audits."

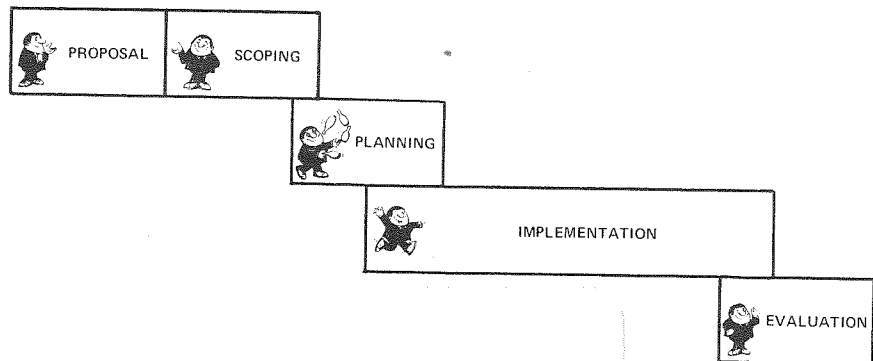
# Appendix I

## A FRAMEWORK FOR PERFORMING EXPANDED SCOPE AUDITS

The framework below provides a system for committing and managing resources. Each phase represents a specific stage in an audit, with specific objectives, activities, inputs, outputs, and decisions. However, the amount of time and effort devoted to each phase depends on the complexity, requirements, and circumstances of the assignment.

- Proposal Phase—Develop the background and justification for a specific assignment and authorize initial resources.
- Scoping Phase—Determine the validity of the issues, the complexity of the assignment, the availability of data, and the range of approaches to achieve the objectives.
- Planning Phase—Identify segments, tasks, and required resources and responsibilities and develop an effective assignment plan.
- Implementation Phase—Perform; control; and, if required, redirect the job using the job plan as a management framework.
- Evaluation Phase—Evaluate staff performance and job results.

The five phases are sequential and decisions should be made in each phase before starting the next. However, some phases may overlap.





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