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PROJECT FARE TASK II REPORT

URBAN MASS TRANSPORTATION INDUSTRY SURVEY OF REPORTING CAPABILITY

NOVEMBER 1972

INTERIM TASK II REPORT FOR
JULY – NOVEMBER 1972 PERIOD

PART I – SURVEY FINDINGS

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ARTHUR ANDERSEN & CO.

815 CONNECTICUT AVENUE, N.W.
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November 30, 1972

The Honorable Carlos C. Villarreal
Administrator
Urban Mass Transportation Administration
The Department of Transportation
400 Seventh Street, S. W.
Washington, D. C. 20590

Dear Mr. Villarreal:

This is the second of four major task reports on Project FARE to define uniform Financial Accounting and Reporting Elements for the urban mass transit industry. Part I of this report summarizes the work performed, findings, and recommendations developed in Task II -- a nation-wide survey of transit industry reporting capabilities. Part II, which is bound under separate cover, presents a sample copy of the questionnaire used in this survey. The findings of this survey help provide the understanding, appreciation of the problems, and background necessary for the next major task (III) -- development of the candidate reporting system.

Our work in Task II brought us into direct contact with a broad cross section of the transit industry. Throughout this task, we have maintained close contact with the Industry Control Board and the Project FARE Technical Director for the Urban Mass Transportation Administration. We have also participated in presentations on the current status of Project FARE at the 1972 annual conferences of the Institute for Rapid Transit and the American Transit Association. From these activities, we have observed a high level of interest and industry cooperation in Project FARE. This type of strong industry support should make the ultimate product of this effort more useful to the transit industry and other potential system users.

For continuity purposes, we have included background information from the Task I report in the Preface, Introduction, and Appendix B of this report.

Very truly yours,

Arthur Andersen & Co.

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16. Abstract

Report contains a description of the work done to evaluate the capability of the urban mass transit industry to report financial and operating data through a uniform reporting system. Techniques used in the evaluation included a questionnaire survey of 191 transit systems and field studies of 43 transit systems and related organizations. The questionnaires and field studies disclosed a wide variety of operating and record keeping practices. Reporting results by uniformly defined data categories will require translation of data from internally used categories to reporting categories for many transit systems. It will also require collection of data not now maintained for many transit systems.

Part I - Survey Findings
Part II - Sample Questionnaire

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Preface

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PREFACE

Prior to 1971, the Accounting Committee of the American Transit Association had recognized an urgent need for comparative operating and financial data for the urban mass transit industry. The need for reliable, comparative financial and operating data was also recognized and expressed by researchers involved in industry analysis and planning activities.

In the spring of 1971, the American Transit Association (ATA) and the Institute for Rapid Transit (IRT) submitted a grant request to the Urban Mass Transportation Administration (UMTA) defining a proposed project to develop a uniform industry reporting system. This industry proposal was eventually modified and refined by UMTA, with industry participation and concurrence, into the formation of Project FARE (Uniform Financial Accounting and Reporting Elements). The project started on March 1, 1972, with a contract to Arthur Andersen & Co. as the prime contractor for Project FARE.

Under the contract, UMTA retains overall administrative control through its Project Technical Director who works directly with the Industry Control Board to provide policy direction for the project. The Industry Control Board provides direct input into the project through its sixteen members who represent a cross section of the urban mass transit industry. This Board

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includes representatives from mass transit systems, commuter rail operations, the ATA, the IRT, the National Governor's Conference, and the National League of Cities. The UMTA Technical Director and the Board meet with the contractor periodically to establish policy, provide direct input, evaluate progress and review future work plans for the project.

The primary objective of Project FARE is to develop and test a candidate reporting system which will accumulate transit industry financial and operating results by uniform categories. The system is to be designed so that it can be eventually implemented on an industry-wide basis. To ensure the feasibility of future implementation, the candidate reporting system will be tested for practicality and usefulness at selected operating sites.

Ultimately, the information collected through the industry-wide reporting system will be designed to address the needs of:

- Individual transit systems for comparing their performance with other transit systems with similar characteristics.

- Transit industry associations for monitoring industry performance.

- Federal, state and local government agencies for transit industry analysis and for financial assistance program administration.

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Project FARE is divided into the following major tasks:

Task I - Identify the information requirements of the potential users of the system.

Task II - Survey the capability of selected transit systems to supply the information required.

Task III - Develop a candidate system of reporting elements for which implementation is currently feasible.

Task IV - Test implement the candidate system at selected transit systems.

Each of these tasks is to be concluded with the submission of a written task report by Arthur Andersen & Co. The report for Task I was submitted to UMTA in July, 1972. It contains a description of the proposed data considered useful for potential users of the system. This is the report for Task II.

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Introduction

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1. INTRODUCTION

The trends in the economic characteristics of the urban mass transit industry have been documented in other recent studies and will not be repeated in depth here.[1] In the past two decades, operating costs have increased at a faster rate than fare box revenues. This trend has placed an increasing number of transit systems in the position of not being able to stretch revenues to cover operating costs. To alleviate this problem, these systems have been forced to explore various alternatives. Typical alternatives include raising fares, reducing service levels, seeking subsidies, or suspending operations. Public authorities generally have been established to take over the operations whenever private owners suspended operations due to an unfavorable economic environment.

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1. The following two studies contain extensive description of the condition of the industry:

   a. Feasibility of Federal Assistance for Urban Mass Transportation Operating Costs, U. S. Department of Transportation, November, 1971.

   b. Economic Characteristics of the Urban Public Transportation Industry, U. S. Department of Transportation, February, 1972.

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For many communities and urban planners, these trends have induced a fundamental reevaluation of the nature and basic objectives of the transit industry. The concept of transit systems as profit-making enterprises is becoming more obscure as evidenced by the fact that more and more transit systems, both large and small, are becoming the operating responsibility of public agencies. In this context, transit systems may be regarded as an essential public service requiring public financial support, similar to the provision of streets and highways, fire and police protection services. When their operations are viewed as publicly supported services, transit system managers can develop a broader view of the levels of service to be provided.

The levels of service can be defined in the context of achieving social as well as economic goals. Thus, mobility considerations in the urban area can become a prime target for public urban transit systems. For example, increased transit services can be aimed at workday automobile commuters in order to reduce traffic congestion and air pollution. Increased transit services can also be aimed at the needs of the community at large and subgroupings, such as the transportation disadvantaged--the young, the elderly, the poor, and the handicapped.

This concept of expanded transit services and the unfavorable economic circumstances of the industry have led to

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supplementing operating revenues with public funds to cover costs. The subsidies have come from local, state, and Federal levels of government and have taken many forms. State and local subsidies have stimulated capital equipment expansion and replacement and have helped to cover current operating expenses. Federal aid has so far been restricted to capital grants and research and development; however, various types of operating assistance have been considered by the Congress for several years.

1.1 Need for Industry Information Base

The foregoing general description of the industry has been substantiated by several recent research efforts. However, in each of these efforts, a common observation has been that the basic research information is incomplete and lacking in comparability and consistency. Currently there is no procedure for collecting data in which all of the transit systems consistently apply the same standards for reporting their performance results. Consequently, it has not been possible to get an accurate measure of the operating deficit for the industry, to obtain comparable measures of the levels of service being provided by the various transit systems, or to obtain other information necessary for making policy decisions. An improved information base which describes the economic and operating conditions in the industry is a necessary requisite for effective planning and administration of a program for assisting transit operations.

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1.2 Existing Transit Industry Reporting Systems

The American Transit Association (ATA) system for collecting financial and operating statistics is the most widely used system, and its products are widely referenced in research projects. However, the ATA reporting system provides for voluntary submission of reports by all transit systems in the United States and Canada, and only 10-15% of the systems file reports. Further, the ATA system does not use a standard definition of reporting categories applied uniformly by all reporting entities.

Many accounting systems are being used throughout the country. These include standard systems established by the Interstate Commerce Commission, the American Transit Accountants' Association, and various state and local regulatory bodies. The ATA reporting system has different forms for the reports to be submitted according to Interstate Commerce Commission uniform charts of accounts or the American Transit Accountants' Association uniform charts of accounts. Other transit systems not using either of these accounting systems report by their own format. Because there are substantial differences between the charts of accounts, a transit system using an ICC chart cannot be compared with a transit system using an ATA chart. As a result, the reports of these two transit systems cannot be consolidated to accurately measure their aggregate financial performance.[1]

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1. These limitations are fully recognized by the ATA. As previously noted, the Association has provided a major supporting role in the development and conduct of Project FARE.

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Another system administered by the ATA is the Transit Pars Data Interchange, which is also based on voluntary reporting. This system specifies standard definitions for reporting categories. The data reported are used to calculate certain "derived ratios" and percentage relationships. The calculated data are arrayed to show comparisons among transit systems. The pars are standards developed by an ATA committee in the mid-fifties and revised in 1972. The pars now indicate the percentages of various expense classes to the total cost of operations.

Organizations other than the American Transit Association have also attempted to develop reporting systems for the collection of data describing transit operations. The Michigan Department of Commerce, Bureau of Transportation contracted with the American Academy of Transportation, Ann Arbor, Michigan for the development of a reporting system for the State of Michigan. Similar efforts have been or are being conducted in the states of Wisconsin and Pennsylvania. The Michigan project stopped short of developing standard definitions for the reporting categories.

Although many transit systems use the ICC chart of accounts, they are not all required to report operating results to the ICC. Those transit systems not engaged in interstate operations for which the ICC must issue a license are not required to report their operating results to the ICC. The vast majority of transit systems do not

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report to the ICC, but many of them are required to report to their state department of transportation or state public utilities commission using the ICC reporting form or a variation thereof. The lack of centralized data collection and processing and the variations from state to state prevent this data collection effort from serving an industry-wide need.

Reporting under these systems has had limited effectiveness. Some of the systems are too narrow in scope to meet the information needs of some of their potential users. Others are not based on uniform reporting categories. A reporting system should be comprehensive and based on a uniform application of standard reporting category definitions in order to provide the consistency and reliability necessary to permit useful analyses of operating performance data for the transit industry.

1.3 Objectives of Project FARE

To fulfill the need for an improved transit industry reporting system, Project FARE was defined through the joint efforts of the ATA, the IRT, and UMTA. The objectives of this project as stated in the contract are to "improve the consistency and reliability of financial and operating data on transit companies." The product of Project FARE will be a candidate reporting system to overcome the deficiencies in the existing reporting systems.

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Other projects being performed by DOT bear close relationship to Project FARE. The distinctions between the objectives of these projects should be clearly understood. The TOMS Program (Transit Operations & Management Systems) and its associated projects, SIMS (Service, Inventory & Maintenance System - formerly TRANSMAN), RUCUS (Run Cutting and Scheduling), and MPS (Maintenance Planning System for rail rapid operations) are intended to develop improved internal information systems for transit system management. These projects complement Project FARE which is being designed as an external reporting system.

1.4 Organization of this Report

As noted in the PREFACE, this interim report covers the second of four major tasks of Project FARE. The purpose of this task is to evaluate the capability of operating transit systems to supply the information required by the prospective users of the reporting system. Those information requirements are described in the report for Task I dated July, 1972. The remainder of this report describes the procedures followed to achieve the Task II purpose (Chapter 2), the results of the work performed (Chapters 3 and 4), the conclusions reached from the investigation (Chapter 5), and the plans for proceeding with Task III (Chapter 6).

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Methodology

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2. METHODOLOGY

We used two approaches to measure the capability of operating transit systems to supply the required information. First, a reporting capability questionnaire was mailed to a large segment of the urban mass transportation industry. Second, detailed field studies were conducted at a smaller number of transit systems to obtain in-depth analyses of reporting capability.

The questionnaire was used to provide broad coverage of the transit systems operating in the United States. Since it was developed before the Task I industry information requirements were completely defined, the questionnaire was designed to provide a general impression of industry reporting capabilities. The field studies, which were limited to a narrower segment of the industry, were used to evaluate specific reporting capabilities.

2.1 Survey Questionnaire

Two versions of the questionnaire were developed: one for commuter railroad operators and one for all other types of transit operators. The questionnaire was reviewed and approved by the Project FARE Industry Control Board, appropriate officials in the Department of Transportation, and the Clearance Officer in the Office of Management and Budget.

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The questionnaires were distributed and responses received as shown in Table 2.1A. Our intent was to give full coverage to larger transit systems that carry a major proportion of the nation's revenue transit passengers. About 85% of these passengers are carried in the urban areas of 250,000 or more people.[1] The principal transit systems in each of these urban areas were circularized with the questionnaire.

All of the large and medium sized bus systems were sent questionnaires. These include both the multimode and bus-only systems. About 19 percent of the small bus systems were circularized on a random sampling basis.

In order to obtain the highest possible response rate among the large and medium sized systems, we made follow-up telephone inquiries to delinquent respondents. Smaller systems which did not respond were sent a second questionnaire.

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1. Source: "Feasibility of Federal Assistance for Urban Mass Transportation Operating Costs," U. S. Department of Transportation, November, 1971.

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The number of questionnaires returned as shown in Table 2.1A does not indicate the number of systems that responded to each question, for some respondents did not answer every question. Sampling error will vary according to the number that actually responded to a given question. Table 2.1B gives 95 percent confidence intervals for various combinations of sample size and attribute percentages that are encountered in the survey. For example, suppose the number of responses to a given question is 125 and the percent that answer yes to the question is 90%. According to Table 2.1A, the probability is .95 that the true population percent is within 90 $\pm$ 5.3 percent, or within the interval 84.7 percent to 95.3 percent.

As noted at the bottom of the table, the figures overstate the interval. Therefore, there is a probability of at least .95 that the true value lies within the interval. To obtain a more exact interval estimate, the figures in Table 2.1B should be multiplied by the finite population correction factor, $\sqrt{1-\frac{n}{N}}$. The values of this correction factor for selected sample fractions are given in Table 2.1C. Note that the correction factors will always reduce the interval estimate, and the reduction is substantial whenever the sample size is a large proportion of the universe. For example, suppose the population (universe) size is 10 (as with rail rapid) and the number of responses (sample size) is 9. Then, according to Table 2.1C, the interval estimate in Table 2.1B for a sample

size of 9 (10 is the nearest value in the table) would be multiplied by .316, i.e., the interval would be about 1/3 of the value shown in Table 2.1B.

In the detailed analysis of the questionnaire as presented in Chapter 3, the number of respondents is given for each question. Using tables 2.1A, 2.1B and 2.1C the reader can approximate the sampling error. If more accurate estimates are required, he should use the formula provided at the bottom of Table 2.1B.

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TABLE 2.1A QUESTIONNAIRE DISTRIBUTION AND RESPONSE RATE

Mode	Number of Systems	Questionnaires Sent	Questionnaires Received		
			Total	Percent of Those Sent	Percent of Total Systems
Bus Systems:					
Large: Over 400 Buses	20	20	19	95	95
Medium: 100 - 400 Buses	35	35	29	83	83
Small: Under 100 Buses	490	95	59	62	12
Rail Rapid Systems	10	10	10	100	100
Streetcar Systems	6	6	6	100	100
Trackless Trolley Systems	6	6	6	100	100
Commuter Rail Systems	17	17	14	82	82

Note: The individual modes within multimode systems are treated as separate systems.

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TABLE 2.1B

95 PERCENT CONFIDENCE INTERVAL FOR ALTERNATIVE SAMPLE SIZES AND SAMPLE PERCENTS

(INTERVAL = SAMPLE PERCENT ± VALUE IN THE TABLE)

Sample Percent With Attribute	Sample Size							
	125	100	75	50	40	30	20	10
90	5.3	5.9	6.8	8.4	9.4	11.4	14.4	22.6
80	7.0	7.9	9.1	11.2	12.6	15.1	19.2	30.1
70	8.1	9.0	10.4	12.8	14.4	17.4	21.9	34.6
60	8.6	9.6	11.2	13.7	15.4	18.6	23.4	36.9
50	8.8	9.8	11.4	14.0	15.7	19.0	24.0	37.8
40	8.6	9.6	11.2	13.7	15.4	18.6	23.4	36.9
30	8.1	9.0	10.4	12.8	14.4	17.4	21.9	34.6
20	7.0	7.9	9.1	11.2	12.6	15.1	19.2	30.1
10	5.3	5.9	6.8	8.4	9.4	11.4	14.4	22.6

Note: The exact formula for calculating the confidence interval, I, is:

$$I = p \pm t \cdot S_p = p \pm t \sqrt{\frac{p(1-p)}{n-1}\left(1 - \frac{n}{N}\right)}$$

where: S_p denotes the standard error of the sample percent

p denotes the sample percent

n denotes the sample size

N denotes the size of the universe

t denotes the multiple of the standard error which provides a probability of .95 that the true percent lies within the interval.

The figures in the table are calculated without using the factor $\left(1 - \frac{n}{N}\right)$. This means that the figures overstate the size of the interval; i.e., the probability is at least .95 that the true percent lies within the interval. If the sample fraction $\frac{n}{N}$ is greater than 5%, the values in the table should be multiplied by $\sqrt{1 - \frac{n}{N}}$.

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TABLE 2.1C

VALUES OF THE FINITE CORRECTION FACTOR $\sqrt{1 - \frac{n}{N}}$

Sample Fraction $\frac{n}{N}$	$1 - \frac{n}{N}$	$\sqrt{1 - \frac{n}{N}}$
.05	.95	.975
.1	.9	.949
.2	.8	.894
.3	.7	.837
.4	.6	.775
.5	.5	.707
.6	.4	.632
.7	.3	.548
.8	.2	.447
.9	.1	.316

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2.2 Field Studies

After reviewing the questionnaires that had been returned by mid-July, we defined the following objectives for the field studies.

1. To clarify the responses to some of the questions that turned out to be ambiguous.

2. To obtain an in-depth exposure to transit system operations across a broad segment of the industry.

3. To focus directly on the industry capability of supplying the information described in the Task I Report.

The general plan for achieving these objectives during each field study is described in the following steps. The work program and function checklists used in the studies are shown in Appendix A.

1. Initiate the field study by briefing the transit system executive staff on Project FARE and the field study.

2. Request the general manager to provide an overview of the transit system's history, organization, current operations, and prospective changes in the overall operating environment.

3. Conduct a series of reviews with the managers responsible for transportation, scheduling, maintenance, marketing, and planning functions.

4. Review the accounting and information systems to identify the data available for internal management and for external reporting purposes.

The number of field studies conducted at operating transit systems is shown in Table 2.2A. We also conducted field studies at one state department of transportation and one

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holding company that provides management services for its own transit systems and for publicly owned systems. As with the questionnaires, the number of field study participants in each category was biased toward the large systems that serve a high percentage of transit passengers. The principal purpose for including a few small transit systems in the field studies was to test the validity of the questionnaire responses for that category of transit systems.

The field studies were conducted by three different teams of project personnel. Upon completion of the studies, the three principals in these reviews assembled the data collected and compared their findings. The results of the field studies are presented in Chapter 4.

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TABLE 2.2A: FIELD STUDY PARTICIPANTS

Mode	Number of Systems	Responses to Questionnaires	Field Study Systems: Number	Field Study Systems: Percent of Responses
Bus Systems:				
Large: Over 400 Buses	20	19	17	89
Medium: 100 - 400 Buses	35	29	11	38
Small: Under 100 Buses	490	59	5	8
Rail Rapid Systems	10	10	8	80
Streetcar Systems	6	6	5	83
Trackless Trolley Systems	6	6	5	83
Commuter Rail Systems	17	14	6	43

Note: The individual modes within multimode systems are treated as separate systems.

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Questionnaire Results

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3. QUESTIONNAIRE RESULTS

The tables in this chapter present some of the results of the mail survey. The questionnaires used in the survey are shown in Part II of this report (bound separately). A few caveats should be noted before analyzing the questionnaire responses.

First, some respondents did not answer every question, so the sample size (i.e., the number of respondents) varies from question to question. This causes the sampling error to also vary from question to question.

Second, in spite of the effort to make each question precise, we found through our pilot field studies that some of the questions were subject to interpretation by the respondent. For example, there was some misunderstanding of the difference between "Exempt from Tax" and "Tax not Applicable" in the financial policy question on different kinds of taxes. For another, the request for useful lives of assets was sometimes described in the response with ranges for the asset categories or adjustments to our definitions of the categories.

Third, for some questions, the responses were not stratified by mode, but were aggregated for all modes except commuter rail systems. For these questions, the results are biased toward the larger systems, which also tend to be the publicly owned systems. As indicated in Chapter 2, this was an intentional feature of the sample design.

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3.1 Transit System General Characteristics

Tables 3.1A - 3.1C indicate some of the general characteristics of the transit systems (other than commuter rail systems) which responded to the questionnaire. About one-half of the systems in the sample are publicly owned (Table 3.1A). Some systems have parent companies and/or subsidiaries and/or contract manager (Table 3.1B). This suggests that some costs, particularly overhead costs, may have to be allocated to arrive at total transit system costs.

TABLE 3.1A: TRANSIT SYSTEM OWNERSHIP

	Respondents	
Ownership	Number	Percent
Public	59	53
Private	52	47
Total	111	100
Systems not responding	1	===
	112	
	===	

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TABLE 3.1B: PARENT/SUBSIDIARY/AND CONTRACT MANAGEMENT TRANSIT SYSTEMS

	Respondents	
	Number	Percent
Systems with parent company	46	43
Systems without parent company	62	57
Total responses	108	100
Systems not responding	4	
	112	
Systems without subsidiary company	7	6
Systems without subsidiary company	101	94
Total responses	108	100
Systems not responding	4	
	112	
Systems with contract management	14	13
Systems without contract management	95	87
Total responses	109	100
Systems not responding	3	
	112	

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Many of the respondents to the questionnaire indicated that they operated one or more forms of special transit services. The percentage of respondents operating selected kinds of special services is shown in Table 3.1C. Not shown is the fact that regular transit vehicles are used in these special services by 96% of the transit systems. The maintenance costs on these vehicles thereby become joint costs for these different special services. These joint costs have to be allocated in order to get the total cost of each type of service.

TABLE 3.1C: RESPONDENTS OPERATING SELECTED SPECIAL SERVICES

	Respondents		
Special Service	Total	Number Yes	Percent Yes
Dial-a-bus	111	5	5
Contract school bus	111	55	50
Charter	111	102	92
Special events-special lines	111	65	59
Scheduled sightseeing tours	111	21	19

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3.2 Accounting System Characteristics

We determined the accounting periods most widely used in the industry. All commuter rail systems must report to the ICC on a calendar year basis. Only 57% of the commuter rail respondents indicated that their accounting system furnished interim reports on commuter rail operations. We expect this percentage might have been higher if we had made it clear that we meant internal management reports as well as published external reports.

The most common fiscal years for the rest of the industry end on December 31 (67%) and June 30 (19%). However, 93% of the respondents indicated that their accounting system furnished interim period reports. If the reporting system designed in Task III is based on an annual reporting period, or if there is an annual requirement that differs from the monthly, quarterly, or semiannual requirement, all reporting systems should report for the same fiscal year in order to achieve the uniformity and comparability being sought with this system.

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The respondents indicated the general methods of accounting being used throughout the industry. The ICC has prescribed the method that all commuter rail systems must follow -- accrual basis accounting. For the rest of the industry, 84% indicated that they use accrual basis accounting, 14% use cash basis, and 7% use commitment or encumbrance-basis accounting. These percentages add to more than 100% because some respondents checked more than one answer. Such respondents may be using a combination basis, or they may maintain two sets of records for different purposes. For example, we know of at least one transit system that maintains encumbrance-basis books to satisfy municipal requirements and maintains a set of "proprietary records" on the accrual basis. If the accrual basis is established as a standard for the FARE reporting system, about 15% of the reporting systems would have to make an accounting-basis conversion to prepare their reports properly.

We found that the ICC Uniform System of Accounts is the most frequently used set of accounts. All but one of the commuter rail systems indicated that they use the ICC accounts, or an expansion thereof as proposed for Amtrak operations. One commuter rail system indicated that it is using its own customized chart of accounts and, presumably, performs a translation to the ICC structure for external reporting purposes. The charts of accounts being used by other transit systems are indicated in Table 3.2A.

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Because of the diversity of accounts being used, and because the reporting categories to be defined in Task III may not duplicate the ICC accounts, most transit systems will have to go through some type of translation from their accounting categories to the FARE reporting categories. Since the ICC accounts are so widely used, we will develop in Task III a translation guide from the ICC categories to the FARE categories.

TABLE 3.2A: TRANSIT SYSTEM CHARTS OF ACCOUNTS

	Respondents	
Chart of Accounts Being Used	Number	Percent
ICC Uniform System of Accounts	60	55
ATA Classification of Accounts for Bus Operating Companies	15	14
A combination of parts of two or more uniform systems	10	9
Transit system's own custom chart of accounts	23	20
Other	2	2
Totals	110	100
No response	2	
	112	

Note: This question was not asked of the commuter rail systems, for we expected all of them to use the prescribed ICC account structure.

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The relative ease of performing the translation of accounting categories is dependent on the degree of mechanization of the accounting system. We therefore asked the respondents to indicate what storage medium is used for recording general ledger data. The responses are shown in Table 3.2B. The majority of transit systems will not be able to use mechanized translation techniques with their current accounting systems.

TABLE 3.2B: MECHANIZATION OF ACCOUNTING SYSTEMS

Storage Medium for General Ledger	Commuter Rail Respondents			Other Respondents		
	Total	Number Yes	%Yes	Total	Number Yes	%Yes
Ledger sheets posted manually or by book-keeping machine	14	12	86	110	80	73
Punched cards	14	1	7	110	14	13
Magnetic tape or disk	14	3	21	110	29	26

Note: It was expected that the systems would answer yes to only one of the three questions, but several indicated that they had more than one procedure. Therefore, the questions were treated separately.

In trying to anticipate how the financial and operating statistics for maintenance activities would be collected by the reporting transit systems, we assumed that accumulation of these data by work orders would be convenient. Therefore, we asked the respondents for all modes to indicate whether or not they used work orders as a basis for data collection and at what level of

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detail they accumulated financial and operating statistics on vehicle and plant maintenance activities. The results are presented in Tables 3.2C - 3.2F.

In general terms it can be concluded that most of the systems use work orders for all vehicle maintenance work. This is true for all modes except commuter rail (Table 3.2D). The size of the bus systems appears to make little difference in the results (Table 3.2C). Both physical operations and cost records are usually maintained.

Work orders are also generally used for plant maintenance work. However, here a larger percentage of the systems use work orders only when the work exceeds a specified amount. Note that a majority of the commuter rail systems do not record the physical operation performed in plant maintenance (Table 3.2E).

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TABLE 3.2C: WORK ORDER USAGE FOR VEHICLE MAINTENANCE

DATA COLLECTION (BUS MODE)

	Large Systems		Medium Systems		Small Systems	
Work Order Usage	Number	Percent	Number	Percent	Number	Percent
For non-financial maintenance statistics:						
- for all vehicle maintenance work	14	73	21	72	42	78
- for vehicle maintenance work over a specified amount	3	16	4	14	10	18
- work orders not used	2	11	4	14	2	4
Totals	19	100	29	100	54	100
No response	0		0		5	
Totals	19		29		59	
For financial maintenance statistics:						
- for all vehicle maintenance work	9	60	10	53	31	82
- for vehicle maintenance work over a specified amount	4	27	0	0	3	8
- work orders not used	2	13	9	47	4	10
Totals	15	100	19	100	38	100
No response	4		10		21	
Totals	19		29		59	

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TABLE 3.2D: WORK ORDER USAGE FOR VEHICLE MAINTENANCE DATA COLLECTION (FIXED GUIDEWAY MODES)

Work Order Usage	Rail Rapid		Streetcar		Trolleybus		Commuter Rail	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
For non-financial maintenance statistics:								
- for all vehicle maintenance work	7	78	3	50	3	100	6	43
- for vehicle maintenance work over a specified amount	1	11	3	50	0	0	3	21
- work orders not used	1	11	0	0	0	0	5	36
Totals	9	100	6	100	3	100	14	100
- no response	1		0		3		0	
Totals	10		6		6		14	
For financial maintenance statistics:								
- for all vehicle maintenance work	7	78	3	60	4	80	8	57
- for vehicle maintenance work over a specified amount	1	11	2	40	1	20	2	14
- work orders not used	1	11	0	0	0	0	4	29
Totals	9	100	5	100	5	100	14	100
- no response	1		1		1		0	
Totals	10		6		6		14	

3.2E: WORK ORDER USAGE FOR PLANT MAINTENANCE DATA COLLECTION (BUS MODE)

	Large Systems		Medium Systems		Small Systems	
Work Order Usage	Number	Percent	Number	Percent	Number	Percent
For non-financial maintenance statistics:						
- for all plant maintenance work	6	40	11	44	21	49
- for plant maintenance work over a specified amount	4	27	6	24	11	26
- work orders not used	5	33	8	32	11	26
Totals	15	100	25	100	43	100
No response	4		4		16	
Totals	19		29		59	
For financial maintenance statistics:						
- for all plant maintenance work	8	42	7	37	16	47
- for plant maintenance work over a specified amount	8	42	7	37	11	32
- work orders not used	3	16	5	26	7	21
Totals	19	100	19	100	34	100
No response	0		10		25	
Totals	19		29		59	

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TABLE 3.2F: WORK ORDER USAGE FOR PLANT MAINTENANCE

DATA COLLECTION (FIXED GUIDEWAY MODES)

	Rail Rapid		Streetcar		Trolleybus		Commuter Rail	
Work Order Usage	Number	Percent	Number	Percent	Number	Percent	Number	Percent
For non-financial maintenance statistics:								
- for all plant maintenance work	5	56	2	40	1	50	2	17
- for plant maintenance work over a specified amount	2	22	3	60	0	0	3	25
- work orders not used	2	22	0	0	1	50	7	58
Totals	9	100	5	100	2	100	12	100
- no response	1		1		4		2	
Totals	10		6		6		14	
For financial maintenance statistics:								
- for all plant maintenance work	6	67	2	40	4	80	4	36
- for plant maintenance work over a specified amount	1	11	3	60	1	20	3	27
- work orders not used	2	22	0	0	0	0	4	36
Totals	9	100	5	100	5	100	11	100
- no responses	1		1		1		3	
Totals	10		6		6		14	

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3.3 Revenue Accounting

Table 3.A indicates, as expected, that a large majority of the systems derive their funds for operating expenses (as distinct from capital costs) from operating revenues. A few of them receive operating funds from special taxes and grants, mostly from local sources. Four of the commuter rail systems receive grants from state funds.

Tables 3.3B and 3.3C show the fare structures by which the operating revenue is obtained. About 75 percent of the large and medium sized bus systems have zone fares, whereas only 52 percent of the small bus systems have zone fares (Table 3.3B). Regardless of size, the majority of bus systems have special fares for children and students. Most large and medium sized systems also give special fares to senior citizens. Handicapped riders generally do not receive special fares. Quantity discounts are given in a minority of the bus systems.

The flat fare system is more widely practiced by rail rapid, streetcar and trolleybus systems (Table 3.3C). These systems generally have special fares for children, students, and senior citizens, but not handicapped riders. Quantity discounts are not widely practiced. Most of the commuter rail systems, on the other hand, have zone fares and give quantity discounts and special fares to children. Students, senior citizens and handicapped persons are not usually allowed special fares.

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TABLE 3.3A: SOURCES OF FUNDS FOR OPERATING EXPENSES

	Commuter Rail Systems			All Other Systems		
Sources of Funds	Total	Number Yes	Percent Yes	Total	Number Yes	Percent Yes
Operating revenues	14	14	100	106	106	100
State property taxes	-	-	-	106	0	0
Local property taxes	-	-	-	106	21	20
State sales taxes	-	-	-	106	4	4
Local sales taxes	-	-	-	106	5	5
Grants from state general funds	14	4	28	106	8	8
Grants from local general funds	14	1	7	106	25	24
Grants from Federal funds for demonstration projects	14	1	7	106	10	9
Reimbursement from State for difference between special and normal fares	14	0	0	106	5	5
Reimbursement from local for difference between special and normal fares	14	0	0	106	3	3

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TABLE 3.3B: FARE STRUCTURE FOR BUS MODE

Fare Structure	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Single (flat) fare		5	26		7	24		28	48
Zone fares		14	74		22	76		31	52
		--	---		--	---		--	---
Totals		19	100		29	100		59	100
		==	===		==	===		==	===
Special fares for:									
- children	19	15	78	29	16	55	58	35	60
- students	19	16	84	29	24	82	58	52	90
- senior citizens	19	14	73	29	15	52	58	18	31
- handicapped riders	19	4	21	29	5	17	58	5	9
- quantity purchases	19	4	21	29	8	27	58	14	24

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TABLE 3.3C: FARE STRUCTURE FOR FIXED GUIDEWAY MODES

	Rail Rapid			Streetcar			Trolleybus			Commuter Rail		
Fare Structure	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Single (flat) fare		5	50		4	67		4	67		4	28
Zone fares		5	50		2	33		2	33		10	72
		--	---		-	---		-	---		--	---
Total		10	100		6	100		6	100		14	100
		==	===		=	===		=	===		==	===
Special fares for:												
- children	10	6	60	6	3	50	6	5	83	14	13	92
- students	10	5	50	6	4	67	6	5	83	14	6	42
- senior citizens	10	6	60	6	4	67	6	5	83	14	0	0
- handicapped riders	10	1	10	6	2	33	6	2	33	14	1	7
- quantity purchases	10	2	20	6	1	17	6	0	0	14	13	92

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For bus operations, we asked questions to determine the number of systems (1) using registering fare boxes, (2) reconciling registered fares to funds collected, and (3) using an exact fare system. The results of these questions are presented in Table 3.3D. Note that the exact fare system is used primarily by the large and medium systems. The larger systems tend not to use registering fare boxes nor do they necessarily reconcile registered fares to funds collected. The smaller systems seem to prefer both registering fare boxes and the reconciliation process.

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TABLE 3.3D: FARE COLLECTION CHARACTERISTICS FOR BUS OPERATIONS

Characteristic	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Systems using registering fare boxes	19	6	31	29	9	31	57	40	70
Systems reconciling registered fares to funds collected	19	5	26	29	9	31	57	40	70
Systems using an exact fare system, i.e., one in which change is not provided for patrons entering the system	19	19	100	29	27	93	58	26	45

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Table 3.3E indicates certain special revenue classifications for bus systems that are of interest. Virtually all of the systems can sort out their charter and special services revenue. Only 56 percent keep revenue records by route. Most of these determine route revenues from fare box register readings.

It should also be pointed out that a small number of bus systems (3 percent) share revenues with other connecting transit systems.

TABLE 3.3E: SPECIAL REVENUE CLASSIFICATIONS

Classification	Respondents		
	Total	Number Yes	Percent Yes
Charter and special services revenue	109	100	92
Revenue by route	111	62	56
Methods for calculating revenue by route:			
- Revenue by route determined by segregating fare box vaults by route on a routine basis	53	12	22
- Revenue by route determined by segregating fare box vaults by route on a periodic test basis. Route distribution factors are applied to un-segregated fare collections between tests	53	5	9
- Revenue by route determined from fare box register readings	53	36	67

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3.4 Cost Accounting

In order to get an indication of the levels of detail at which transit systems accumulate cost information, we asked the respondents to indicate the availability from their records of certain classes of data. The responses are summarized in Table 3.4A. It appears from our discussions with the Industry Control Board that the structure for reporting expense data may be object class within function. It is therefore important to note the high percentage of respondents who indicated that their existing system already provides expense data in this structure. However, it should be noted that the object class categories and the function categories for the reporting system are likely to be different from those now being used by many transit systems. Because labor costs typically account for about 80% of the total cost of transit system operations, the relatively high availability of detailed data on labor costs suggests that it may be useful to request detailed labor data in the reporting system.

Additional information on selected operating cost categories was obtained for bus and trolleybus systems. The results appear in Table 3.4B.

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TABLE 3.4A: CATEGORIES OF DATA AVAILABE IN EXISTING ACCOUNTING SYSTEMS

Categories of Data	Commuter Rail Systems			Other Transit Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Operating expenses by object class	14	13	92	110	76	69
Operating expenses by object class within department or function	14	13	92	110	94	85
Operating expenses by work activity within department	14	10	71	110	53	48
Revenue and expense by mode of transit service	-	-	-	110	64	58
Vehicle miles operated	14	11	78	110	91	83
Vehicle hours operated	14	3	21	110	100	91
Platform hours for operating personnel	-	-	-	110	75	68
Pay hours for operating personnel	-	-	-	110	60	55
Schedule related payments	-	-	-	110	94	85
Nonschedule related payments	-	-	-	110	80	73
Overtime premium - schedule related	-	-	-	110	70	64
Overtime premium - nonschedule related	-	-	-	110	77	70
Operator instructor pay	-	-	-	109	85	78
Pay for train and engine service	14	14	100	-	-	-
Pay for other direct employees	14	13	92	-	-	-
Overtime premium - train and engine service	14	14	100	-	-	-
Social Security/railroad retirement pay	14	6	42	109	97	89
Minimum guarantee	14	12	85	110	84	76
Vacation pay	14	12	85	110	105	95
Sick leave pay	14	8	57	108	80	74
Group life insurance	14	7	50	110	101	92

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TABLE 3.4B: BUS AND TROLLEYBUS SELECTED OPERATING COST DATA

Operating Cost Category	Bus Operations									Trolleybus		
	Large Systems			Medium Systems			Small Systems					
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Servicing vehicles	19	6	31	29	8	27	59	17	28	6	2	33
Cleaning vehicles	19	5	26	29	8	27	59	9	15	6	2	33
Servicing and cleaning vehicles	19	12	63	29	15	51	59	34	57	6	2	33
Shifting vehicles	19	6	31	29	2	6	59	4	6	6	1	17
Emergency wrecker operations	19	4	21	29	4	13	59	12	20	6	1	17
Snow removal	19	8	42	29	6	20	59	3	5	6	3	50
Installing and removing snow tires and/or tire chains	19	1	5	29	2	6	59	5	8	6	2	33

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The various categories by which vehicle maintenance costs and histories are classified are presented in Tables 3.4C through 3.4F. With respect to the bus mode, there does not appear to be any dominant category by which vehicle maintenance costs are maintained (Table 3.4C). The large systems tend to classify such costs either by bus series (or fleet) or by type of repair. There is no clear-cut pattern for the medium and small systems. On the other hand, vehicle history records are apparently maintained by individual bus (Table 3.4D). Most large systems also keep records by major component within the bus and/or by type of repair.

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TABLE 3.4C: VEHICLE MAINTENANCE COST CATEGORIES FOR BUS MODE

Vehicle Maintenance Cost Category	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
For total system	19	7	36	29	13	44	59	21	35
By bus type, e.g., diesel	19	2	10	29	1	3	59	3	5
By bus series (or fleet)	19	10	52	29	6	20	59	5	8
By individual bus	19	2	10	29	1	3	59	19	32
By major component within individual bus	19	7	36	29	6	20	59	6	10
By type of repair - scheduled maintenance, collision repair, vandalism repair, etc.	19	13	68	29	6	20	59	7	11

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TABLE 3.4D: VEHICLE MAINTENANCE HISTORY CATEGORIES FOR BUS MODE

Vehicle Maintenance History Category	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
For total system	19	4	21	29	4	13	59	26	44
By bus type - propane, diesel, etc.	19	2	10	29	3	10	59	9	15
By bus series (or fleet)	19	4	21	29	4	13	59	3	5
By individual bus	19	12	63	29	19	65	59	39	66
By major component within individual bus	19	12	63	29	20	68	59	19	32
By type of repair - scheduled maintenance collision repair vandalism repair, etc.	19	10	52	29	14	48	59	12	20

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Except for commuter rail, the fixed guideway modes do not have a distinct pattern in the way that vehicle maintenance costs are classified (Table 3.4E). Commuter rail systems generally classify such costs only by total system. Vehicle histories seem to be classified more at the major component level (Table 3.4F).

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TABLE 3.4E: VEHICLE MAINTENANCE COST CATEGORIES FOR FIXED GUIDEWAY MODES

Vehicle Maintenance Cost Category	Rail Rapid			Streetcar			Trolleybus			Commuter Rail		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
For total system	10	1	10	5	2	40	6	2	33	14	10	71
For rail rapid transit, streetcar, or commuter rail line	10	2	20	5	0	0	-	-	-	14	1	7
By vehicle series	10	3	30	5	0	0	-	-	-	14	1	7
By individual vehicle	10	0	0	5	1	20	6	1	17	14	2	14
By major component within individual vehicle	10	4	40	5	1	20	6	1	17	14	1	7
By type of repair - scheduled maintenance, collision repair, vandalism repair, etc.	10	5	50	5	2	40	-	-	-	14	0	0

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TABLE 3.4F: VEHICLE MAINTENANCE HISTORY CATEGORIES FOR FIXED GUIDEWAY SYSTEM

Vehicle Maintenance History Category	Rail Rapid			Streetcar			Trolleybus			Commuter Rail		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
For total system	10	1	10	5	2	40	6	0	0	14	5	35
For rail rapid transit, streetcar, or commuter rail line	10	1	10	5	0	0	-	-	-	14	1	7
By vehicle series	10	2	20	5	0	0	-	-	-	14	2	14
By individual vehicle	10	1	10	5	2	40	6	0	0	14	3	21
By major component within individual vehicle	10	7	70	5	3	60	6	3	50	14	4	28
By type of repair - scheduled maintenance, collision repair, vandalism repair, etc.	10	3	30	5	3	60	-	-	-	14	3	21

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Plant maintenance classification procedures are given in Tables 3.4G - 3.4J. For bus systems, a distinctive pattern does not appear to exist, either for the plant maintenance cost categories (Table 3.4G) or the history categories (Table 3.4H). This is also true for the fixed guideway systems (Tables 3.4I and 3.4J). However, the rail rapid and streetcar modes tend to classify both costs and histories by major component.

In general terms, the survey information regarding vehicle and plant maintenance costs and histories shown in the foregoing tables indicates that there is a relatively low degree of uniformity in the manner in which the costs and histories are classified. However, most of the larger systems classify their data into fairly detailed groupings so that it will probably not be too burdensome to reclassify into broader categories.

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TABLE 3.4G: PLANT MAINTENANCE COST CATEGORIES FOR BUS MODE

Plant Maintenance Cost Category	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
For total system	19	9	47	28	13	44	54	26	44
By major groups of plant items (e.g., bus loops, garages, shop, etc.)	19	8	42	28	7	24	54	6	10
By individual asset	19	4	21	28	2	6	54	6	10
By type of maintenance - scheduled maintenance, vandalism repair, fire damage, etc.	19	6	31	28	0	0	54	4	6

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TABLE 3.4H: PLANT MAINTENANCE HISTORY CATEGORIES FOR BUS MODE

Plant Maintenance History Category	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
For total system	19	5	26	28	13	44	54	28	47
By major groups of plant items (e.g., bus loops, garages, shop, etc.)	19	4	21	28	6	20	54	5	8
By individual asset	19	3	15	28	4	13	54	9	15
By type of maintenance - scheduled maintenance, vandalism repair, fire damage, etc.	19	7	36	28	0	0	54	4	6

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TABLE 3.4I: PLANT MAINTENANCE COST CATEGORIES FOR FIXED GUIDEWAY MODES

Plant Maintenance Cost Category	Rail Rapid			Streetcar			Trolleybus			Commuter Rail		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
For total system	10	1	10	6	1	17	5	1	20	14	6	42
By major components such as elevated structures, bridges, trestles, etc.	10	6	60	6	3	50	5	3	60	14	4	28
By individual asset	10	1	10	6	1	17	5	0	0	14	0	0
By type of maintenance - scheduled maintenance, vandalism repairs, fire damage, etc.	10	4	40	6	2	33	5	2	40	14	0	0

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TABLE 3.4J: PLANT MAINTENANCE HISTORY CATEGORIES FOR FIXED GUIDEWAY MODES

Plant Maintenance History Category	Rail Rapid			Streetcar			Trolleybus			Commuter Rail		
	Total	Number Yes	Percent Yes	Total	Number Yes	Percent Yes	Total	Number Yes	Percent Yes	Total	Number Yes	Percent Yes
For total system	10	1	10	6	1	17	5	0	0	14	5	35
By major components such as elevated structures, bridges, trestles, etc.	10	5	50	6	3	50	5	1	20	14	3	21
By individual asset	10	2	20	6	0	0	5	0	0	14	1	7
By type of maintenance-scheduled maintenance, vandalism damage, fire damage, etc.	10	3	30	6	2	33	5	1	20	14	0	0

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The next group of tables have to do with certain financial costs. Tables 3.4K and 3.4L show the applicability of various taxes. Here again, it is interesting to note the wide variety of practices within the industry. Some systems are required to pay certain taxes; others are exempt.

There is a possibility that some of the questions were incorrectly interpreted. For example, one would expect that all commuter rail systems would be uniformly taxed at the Federal level, but the figures show a variation in payment of Federal taxes by commuter systems. In any case, in order to provide uniformity, it will be necessary to account for these differences in the payment policies in the reporting system.

The private transit systems and commuter rail operations are subject to income taxes. Some of these private systems account for certain items differently for financial and tax reporting purposes. They may thereby generate a deferred tax liability. About 52% of the private transit systems and 21% of the commuter rail systems record a provision for deferred taxes in this situation. The reporting system should recognize this difference in accounting treatment among private systems.

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TABLE 3.4K: APPLICABILITY OF VARIOUS TAXES FOR SYSTEMS OTHER THAN COMMUTER RAIL SYSTEMS

	Pay Tax			Exempt From Tax			Tax Not Applicable		
Type of Tax	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
FICA tax	109	101	92	109	3	3	109	5	5
Federal unemployment tax	108	71	66	108	26	24	108	11	10
State unemployment tax	107	77	72	107	19	18	107	11	10
State sales tax	108	60	55	108	42	39	108	6	6
Federal fuel tax	109	56	51	109	49	45	109	4	4
State fuel tax	109	67	61	109	38	35	109	4	4
Personal property tax	108	46	42	108	45	42	108	17	16
Real property tax	108	55	51	108	41	38	108	12	11
Federal excise tax (except on fuel)	108	58	54	108	40	37	108	10	9
State retirement pension tax	109	11	10	109	10	9	109	88	81
Payments in lieu of real and personal property tax	108	8	7	108	20	19	108	80	74
Vehicle license tax	110	62	57	110	41	37	110	7	6

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TABLE 3.4L: APPLICABILITY OF VARIOUS TAXES FOR COMMUTER RAIL SYSTEMS

	Pay Tax			Exempt From Tax			Tax Not Applicable		
Type of Tax	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Federal tax under Railroad Retirement Act	14	14	100	14	0	0	14	0	0
Federal unemployment tax	14	11	79	14	0	0	14	3	21
State unemployment tax	14	0	0	14	0	0	14	0	0
State sales tax	14	12	86	14	2	14	14	0	0
Federal fuel tax	14	6	42	14	5	35	14	3	21
State fuel tax	14	5	35	14	5	35	14	4	28
Personal property tax	14	9	64	14	3	21	14	2	14
Real property tax	14	11	79	14	3	21	14	0	0
Federal excise tax (except on fuel)	14	4	28	14	0	0	14	10	72
State retirement pension tax	14	0	0	14	0	0	14	44	100
Payment in lieu of real and personal property tax	14	0	0	14	0	0	14	14	100
Vehicle license tax	14	12	86	14	1	7	14	1	7

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Because the labor contracts differ widely throughout the industry, we expected to find a variety of practices for paying and recording pension costs. The findings are summarized in Table 3.4M. Since these costs are a function of labor contracts, it may be difficult to define a consistent overall reporting standard. As an alternative, it may be feasible to include in the reporting system an indication of the composition of the reported pension costs.

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TABLE 3.4M: REPORTING PENSION COSTS

Accounting Treatment	Commuter Rail Systems			Other Transit Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Systems making payments to a pension trust fund	14	10	71	104	71	68
Systems making payments direct to retirees	14	8	57	104	34	33
Composition of annual pension fund payment:						
- portion of current (normal) costs	14	2	14	101	9	9
- total current (normal) costs	14	7	50	101	46	46
- interest on past service costs	14	5	35	101	15	15
- past service costs	14	6	42	101	29	29
- pay-as-you-go costs	14	2	14	101	13	13
Composition of pension costs shown in published financial statements:						
- portion of current (normal) costs	14	2	14	100	10	10
- total current (normal) costs	14	8	57	100	50	50
- interest on past service costs	14	7	50	100	13	13
- past service costs	14	6	42	100	27	27
- pay-as-you-go costs	14	4	28	100	26	26

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The accounting treatment for fringe benefits and overhead, relating to capitalized labor and material costs, is presented in Table 3.4N. As this table indicates, the commuter railroads have capitalized these indirect costs to a much greater extent than other types of transit operators.

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TABLE 3.4N: CAPITALIZATION OF OVERHEAD COSTS

Accounting Treatment	Commuter Rail Systems			Other Transit Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Systems capitalizing fringe benefits and overhead expenses relating to capitalized labor.	14	13	92	103	31	30
Items included in the fringe benefits and overhead pool:						
- fringe benefits only	13	7	54	31	16	52
- fringe benefits and indirect departmental costs	13	5	38	31	4	13
- fringe benefits, indirect departmental costs, and cost of service departments	13	1	8	31	11	35
Systems capitalizing overhead expenses applicable to material purchases	14	13	92	106	10	9
Items included in the fringe benefits and overhead pool:						
- storeroom costs only	13	1	8	10	3	30
- storeroom costs and purchasing department costs	13	11	84	10	3	30
- storeroom costs, purchasing department costs, cost of service departments	13	1	8	10	4	40

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Transit systems also use different approaches to indemnify themselves for injuries and damages suffered from the operation of their transit system (see Table 3.4Ø). Again, it may be possible to reflect the composition of indemnification expense in the reporting system to accommodate analyses of these differences.

TABLE 3.4Ø: INDEMNIFICATION PRACTICES

	Commuter Rail Systems			Other Transit Systems		
Indemnification Method	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Self-insurer	14	4	28	110	5	5
Self-insurer with excess liability	14	7	50	110	60	54
Insurance carried, with deductible	14	9	64	110	13	12
Insurance carried, no deductible	14	1	7	110	32	29
Method of accounting for anticipated losses under self-insurance and deductible situations:						
- cash basis	14	2	14	78	19	24
- accrual basis	14	14	100	78	55	71

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The remaining tables in this section contain information on miscellaneous cost items and issues that will be helpful in developing the uniform accounts.

Table 3.4P indicates that there is no single practice that dominates in the accounting treatment for materials, supplies, and repair parts that are purchased for inventory rather than for immediate usage on receipt.

TABLE 3.4P: ACCOUNTING FOR INVENTORIES

	Commuter Rail Systems			Other Transit Systems		
Accounting Treatment	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Materials are expensed as purchased	14	3	21	111	27	24
Materials are carried in inventory as long as they are in the central storeroom. They are expensed when they are issued to a satellite storeroom or for usage from the central storeroom	-	-	-	111	16	14
Materials are carried in inventory until issued for usage. Then they are expensed	14	6	42	111	37	33
Selective inventory control system used. Large dollar items are expensed when isssued for usage. Small dollar items are expensed when purchased or when issued to "free issue stocks."	14	7	50	111	44	40

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For the commuter rail mode, we asked for an indication of the types of facilities that are used jointly with freight operations and/or intercity passenger operations. The results are displayed in Table 3.4Q. The cost of maintaining these joint facilities must be allocated to the types of service in order to get the total cost of commuter rail operations.

TABLE 3.4Q: COMMUTER RAIL FIXED ASSETS USED IN JOINT SERVICE

	Joint Usage					
	With Intercity			With Freight		
Asset Categories	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Track and roadways	14	6	42	14	13	93
Tunnels and subways	14	5	35	14	8	57
Bridges and trestles	14	5	35	14	12	86
Passenger stations	14	7	50	14	7	50
Shops and engine houses	14	5	35	14	12	86
Office buildings	14	7	50	14	13	93
Passenger cars	14	1	7	14	0	0
Locomotives	14	1	7	14	7	50
Power distribution facilities	14	2	14	14	4	28

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Finally, Table 3.4R shows that only 15 percent of the transit systems (commuter rail not included) classify costs by route, and only 25 percent sort out costs of charter and special services. Similarly, only a few systems have the problem of sharing facilities and costs with connecting transit systems.

TABLE 3.4R: SPECIAL ALLOCATED COST CLASSIFICATIONS

	Respondents		
Classification	Total	Number Yes	Percent Yes
Cost by route	107	16	15
Cost for charter and special services	105	26	25
Transit systems sharing facilities with a connecting transit system	107	13	12
Transit systems sharing costs for shared facilities	107	10	9

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3.5 Asset Accounting

Most of the systems obtain funds for capital procurement from operating revenues (Table 3.5A). Twenty-one percent of the commuter rail systems and 42 percent of the other systems have received capital grants from the Federal government. Commuter rail systems have received support from state funds. The other systems have received most of their remaining support from local governments, although some states have also contributed.

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TABLE 3.5A: SOURCES OF FUNDS FOR CAPITAL PROCUREMENT

	Commuter Rail Systems			All Other Systems		
Source of Funds	Total	Number Yes	Percent Yes	Total	Number Yes	Percent Yes
Operating revenues	14	10	72	106	82	77
State property taxes	14	0	0	106	0	0
Local property taxes	14	0	0	106	21	20
State sales taxes	-	-	-	106	4	4
Local sales taxes	-	-	-	106	6	6
Grants from state general funds	14	4	28	106	15	14
Grants from local general funds	14	1	7	106	17	16
Grants from Federal funds	14	3	21	106	44	42
Capital Stock	-	-	-	106	5	5

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The accounting treatment for subsidized capital assets is given in Table 3.5B. The question applies only to those systems that received capital subsidies.

Four of the seven commuter rail systems that answered the question credit the subsidies to cost of assets and depreciate the net cost. The other three use methods other than those indicated. The dominant procedure for the other modes is to record the asset at full cost and the subsidy as a capital contribution. The asset is then depreciated over the life of the asset. The interesting point that Table 3.5B brings out is that there is a variety of ways that the subsidy is recorded, i.e., uniformity is clearly not the rule.

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TABLE 3.5B: ACCOUNTING FOR SUBSIDIZED CAPITAL ASSETS

Accounting Treatment	Commuter Rail Systems		All Other Systems	
	Number Yes	Percent Yes	Number Yes	Percent Yes
Subsidy credited to cost of assets. Net cost of asset is depreciated.	4	58	5	10
Subsidy credited to cost of assets. No depreciation taken.	0	0	1	2
Asset recorded at full cost. Subsidy recorded as deferred credit. Asset depreciated and deferred credit amortized over life of asset.	0	0	9	18
Asset recorded at full cost and depreciated over life of asset. Subsidy recorded as capital contribution.	0	0	19	37
Asset recorded at full cost. No depreciation taken. Subsidy recorded as capital contribution.	0	0	10	19
Other methods	3	42	7	14
Totals	7	100	51	100

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Transit systems have used different approaches to valuing and recording the assets of a predecessor company in merger and acquisition proceedings. The methods used are indicated in Table 3.5C. Because many transit systems have recently been taken over by public agencies, or have experienced some other change of ownership, the valuation of assets is an important factor in achieving comparability of data. Except for commuter rail systems, spreading acquisition cost over the assets acquired appears to be the most common practice. This method avoids the recording of "goodwill." However, as with accounting for capital subsidies, the procedure is apparently not uniform throughout the industry.

TABLE 3.5C: ACCOUNTING FOR ACQUIRED TRANSIT SYSTEMS

	Commuter Rail Systems		All Other Systems	
Accounting Treatment	No. Yes	% Yes	No. Yes	% Yes
Acquisition cost allocated to acquired assets on books of buyer	0	0	32	46
Predecessor company's cost used on books of buyer	2	100	20	29
Fair market value at time of acquisition used on books of buyer	0	0	17	25
Totals	2	100	69	100

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3.6 Non-Financial Operating Data

The remainder of this chapter is devoted to the manner in which certain operating data are treated. In particular, this section considers the practices with respect to the collection of data on passengers, maintenance operations and physical characteristics of the systems.

Passenger count information has been the subject of much interest in the industry recently since it has been mentioned as a potential basis for the allocation of future operating subsidies. Through the questionnaire responses, we found a variety of methods for developing passenger count statistics and a number of definitions for "passenger" in these statistics. The percentage of respondents using each of the various methods for developing passenger counts is shown in Table 3.6A, and the percentage of respondents using each of the definitions of "passenger" is shown in Table 3.6B. The responses indicate that the typical methods used to develop passenger count information generally produce estimates rather than actual counts. Further, the passenger count "estimates" are not necessarily comparable among transit systems since different "passenger" definitions are used. Most (73 percent) of the systems define a rider as one passenger for his journey from origin to destination, but their methods of accumulating the count are quite diverse.

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TABLE 3.6A: DISTRIBUTION OF METHODS FOR COUNTING PASSENGERS

Method	Respondents Number	Respondents Percent
Periodically count (or estimate) riders on each vehicle as it passes the maximum load point on each line.	7	8
Divide revenue collected by average fare. Average fare computed periodically by ridership study.	12	14
Divide revenue collected by average fare to get total riders. Multiply total riders by distribution factors to get riders by fare categories. Average fare and distribution factors computed periodically by ridership study. Calculations performed daily.	8	9
Count special and zone fare riders on a continual basis. Adjust revenue collected by fare for special and zone categories. Divide remaining revenue by base fare to get non-special riders.	27	31
Divide revenue collected by average fare to get total riders. Multiply total riders by distribution factors to get riders by fare categories. Average fare and distribution factors computed periodically by ridership study. Calculations performed less frequently than daily.	31	35
Passengers not counted or estimated.	3	3
Totals	88	100
No response	24	
Totals	112	

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TABLE 3.6B: DISTRIBUTION OF "PASSENGER" DEFINITIONS BEING USED

"Passenger" Definition	Respondents Number	Respondents Percent
A rider is counted as one passenger for his journey from origin to destination.	77	73
A rider is counted as one passenger for his base fare and as a second passenger for his purchase of an extra cost transfer.	7	7
A rider is counted as a separate passenger for each vehicle in which he makes a journey, irrespective of whether his transfer to other vehicles was free or extra cost.	18	17
A rider is counted as a separate passenger for each zone he travels in while making a journey.	3	3
Subtotals	105	100
No response	7	
Totals	112	

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Vehicle maintenance practices are presented in Tables 3.6C and 3.6D. It is clear that scheduled maintenance programs are employed by nearly all of the systems. Except for commuter rail, the typical basis on which maintenance is scheduled is vehicle mileage. Observed condition is also a major criterion. Commuter rail systems use time interval which is the basis prescribed by the ICC.

Some miscellaneous questions about vehicle maintenance were asked of bus systems. The results are shown in Table 3.6E.

The types of shop and garage facilities for bus and trolleybus systems are shown in Table 3.6F.

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TABLE 3.6C: VEHICLE MAINTENANCE PRACTICES FOR BUS MODE

Practice	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Transit systems employing scheduled maintenance program	19	18	94	29	28	96	59	55	93
Basis on which maintenance is scheduled:									
- mileage	19	18	94	29	27	93	59	54	91
- time interval	19	2	10	29	8	27	59	6	10
- hours of service	19	1	5	29	0	0	59	3	5
- observed condition	19	6	31	29	13	44	59	19	32
- oil spectrum analysis	19	5	26	29	7	24	59	7	11

Note: Some respondents checked more than one basis for scheduling maintenance.

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TABLE 3.6D: VEHICLE MAINTENANCE PRACTICES FOR FIXED GUIDEWAY MODES

	Rail Rapid			Streetcar			Trolleybus			Commuter Rail		
Practice	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Transit systems employing scheduled maintenance programs.	10	9	90	6	4	67	6	5	83	14	13	93
Basis on which maintenance is scheduled:												
- mileage	10	6	60	6	3	50	6	5	83	14	5	35
- time interval	10	3	30	6	1	17	6	1	17	14	11	78
- hours of service	10	0	0	6	0	0	6	0	0	14	1	7
- observed condition	10	1	10	6	2	33	6	1	17	14	10	71

Note: Some respondents checked more than one basis for scheduling maintenance.

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TABLE 3.6E: MISCELLANEOUS BUS MAINTENANCE DATA

Miscellaneous Data	Large Systems			Medium Systems			Small Systems		
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Bus systems keeping records of maintenance cost in terms of man-hours per thousand miles of bus operation.	18	10	56	28	16	57	58	13	22
Bus systems following a scheduled vehicle replacement program:	19	7	36	28	10	36	57	9	16
- based on mileage	7	2	29	10	0	0	9	4	44
- based on age	7	6	86	10	10	100	9	9	100

Note: Some respondents indicated they use both bases for replacing vehicles.

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TABLE 3.6F: SHOP AND GARAGE FACILITIES

Type of Shop and Garage Facilities	Bus Systems									Trolleybus		
	Large Systems			Medium Systems			Small Systems					
	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Integrated maintenance shop and operating garage where all maintenance is performed on the vehicles assigned to that facility.	19	1	6	29	25	87	59	59	100	6	3	50
Separate operating garages where inspection and light maintenance are performed on the vehicles assigned to each garage and a central maintenance shop where heavy maintenance is performed on all vehicles in the system.	19	18	94	29	4	13	59	0	0	6	3	50

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Finally, Tables 3.6G, 3.6H, and 3.6I indicate the physical plant characteristics for the various modes. Perhaps the most interesting point is that the bus systems display a variety of plant profiles (Tables 3.6G). Only 66 percent of the small systems have operating garages. Some do not have administrative buildings, and so on. The fixed guideway systems exhibit greater uniformity in their asset classification (Table 3.6H).

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TABLE 3.6G: ASSETS CONSTITUTING PHYSICAL PLANT FOR BUS MODE

	Large Systems			Medium Systems			Small Systems		
Plant Categories	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Bus loops and shelters	19	18	94	29	10	34	58	6	10
Operating garages and carhouses	19	19	100	29	23	79	58	38	66
Shop buildings	19	19	100	29	26	89	58	44	76
Outdoor bus heaters	19	4	21	29	0	0	58	1	2
Fare collection equipment	19	19	100	29	24	82	58	44	76
Machinery	19	19	100	29	25	86	58	38	66
Administration building	19	19	100	29	27	93	58	42	72

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TABLE 3.6H: ASSETS CONSTITUTING PHYSICAL PLANT FOR FIXED GUIDEWAY MODES

	Rail Rapid			Streetcar			Trolleybus		
Plant Categories	Total	No. Yes	% Yes	Total	No. Yes	% Yes	Total	No. Yes	% Yes
Trolley or streetcar loops and shetters	-	-	-	6	4	67	6	6	100
Operating garages and carhouses	10	10	100	6	6	100	6	6	100
Shop buildings	10	9	90	6	6	100	6	6	100
Fare collection equipment	10	10	100	6	6	100	6	6	100
Machinery	10	10	100	6	6	100	6	6	100
Administration building	10	9	90	6	6	100	6	5	83
Transit-way track	10	10	100	6	6	100	-	-	-
Transit-way stations and shelters	10	9	90	6	5	83	6	4	67
Subways	10	9	90	6	4	33	6	1	17
Subway stations	10	9	90	6	4	33	6	1	17
Elevated structures	10	7	70	-	-	-	-	-	-
Elevated stations	10	7	70	-	-	-	-	-	-
Bridges and trestles	10	9	90	-	-	-	-	-	-
Power substations	10	9	90	-	-	-	-	-	-
Yards	10	9	90	-	-	-	-	-	-

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TABLE 3.6I: TYPES OF TRANSIT WAY FOR STREETCAR SERVICE

	Streetcar Systems		
Type of Transit Way	Total	Number Yes	Percent Yes
Street	6	6	100
Exclusive right-of-way	6	5	83
Subway	6	2	33
Elevated	6	1	17

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Field Study Results

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4. FIELD STUDY RESULTS

Field studies were conducted at 43 organizations which provide or administer urban mass transportation services. These included 35 transit systems, 6 commuter rail operations, a state department of transportation, and a transit holding company.

4.1 Review of Transit Industry Operations

As mentioned in Chapter 2, METHODOLOGY, one of the purposes of the field studies was to obtain an in-depth understanding of a variety of transit operations. The participating systems were selected to insure coverage of:

- Public and private ownership
- All modes of service
- Various organizational structures
- Different operating sizes
- Different operating methods
- Broad geographic distribution
- Holding company and contract management entities

A list of the organizations reviewed is shown in Table 4.1A, and their geographic distribution in Table 4.1B.

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TABLE 4.1A FIELD STUDY PARTICIPANTS

	Transit Systems	Approximate Number of Vehicles: Motor Bus	Trackless Trolley	Rail Rapid	Street Car
1.	Port Authority Trans-Hudson Corporation (PATH) - New York, N. Y.			252	
2.	Port Authority Transit Corporation (PATCO) - Camden, N. J.			75	
3.	Southeastern Pennsylvania Transportation Authority (SEPTA) - Philadelphia, Pa.	1,687	92	510	278
4.	Massachusetts Bay Transportation Authority (MBTA) - Boston, Massachusetts	1,150	55	353	336
5.	New York City Transit Authority	2,474		6,890	
6.	Chicago Transit Authority	2,640	279	1,286	
7.	Cleveland Transit System	859		117	
8.	San Francisco Municipal Railway	616	333		105
9.	New Orleans Public Service, Inc.	459			35
10.	Port Authority of Allegheny County - Pittsburgh, Pa.	915			95
11.	Transport of New Jersey - Maplewood, N. J.	2,356		30	
12.	Seattle Transit System	370	53		
13.	Southern California Rapid Transit District (RTD) - Los Angeles, California	1,616			
14.	City of Detroit Department of Street Railways	1,088			
15.	AC Transit - Oakland, California	721			
16.	Bi-State Transit System - St. Louis, Mo.	926			
17.	Twin Cities Area Metro Transit - Minneapolis, Minn.	647			
18.	Rapid Transit Lines, Inc. - Houston, Texas	376			

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TABLE 4.-1A FIELD STUDY PARTICIPANTS (CONTINUED)

	Transit Systems	Approximate Number of Vehicles: Motor Bus	Trackless Trolley	Rail Rapid	Street Car
19.	Mass Transit Administration of Maryland - Baltimore, Md.	820			
20.	Dallas Transit System	440			
21.	Milwaukee & Suburban Transport	538			
22.	Metro Dade County Transit Authority - Miami, Fla.	397			
23.	San Diego Transit Corporation	228			
24.	Denver Metro Transit	214			
25.	Tri-County Metro - Portland, Ore.	361			
26.	Columbus Transit Company	249			
27.	Fort Worth Transit Co.	120			
28.	Virginia Transit Co. - Norfolk, Va.	235			
29.	Omaha Transit Company	144			
30.	Virginia Transit Co. - Richmond, Va.	226			
31.	Transit Line Inc. - Newport, R.I.	16			
32.	La Crosse Transit Co.	22			
33.	City Utilities - Springfield, Mo.	65			
34.	Las Vegas Transit System	20			
35.	Ann Arbor Transportation Authority	20			

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TABLE 4.1A FIELD STUDY PARTICIPANTS (CONTINUED)

Commuter Railroads	
36. Boston and Maine Corporation	Approximate number of vehicles not obtained for these respondents.
37. Chicago and North Western	
38. Long Island	
39. Illinois Central	
40. Reading Railway System	
41. Penn Central Transportation Co.	
Other	
42. Wisconsin Department of Transportation	
43. American Transit Corporation - St. Louis, Mo.	

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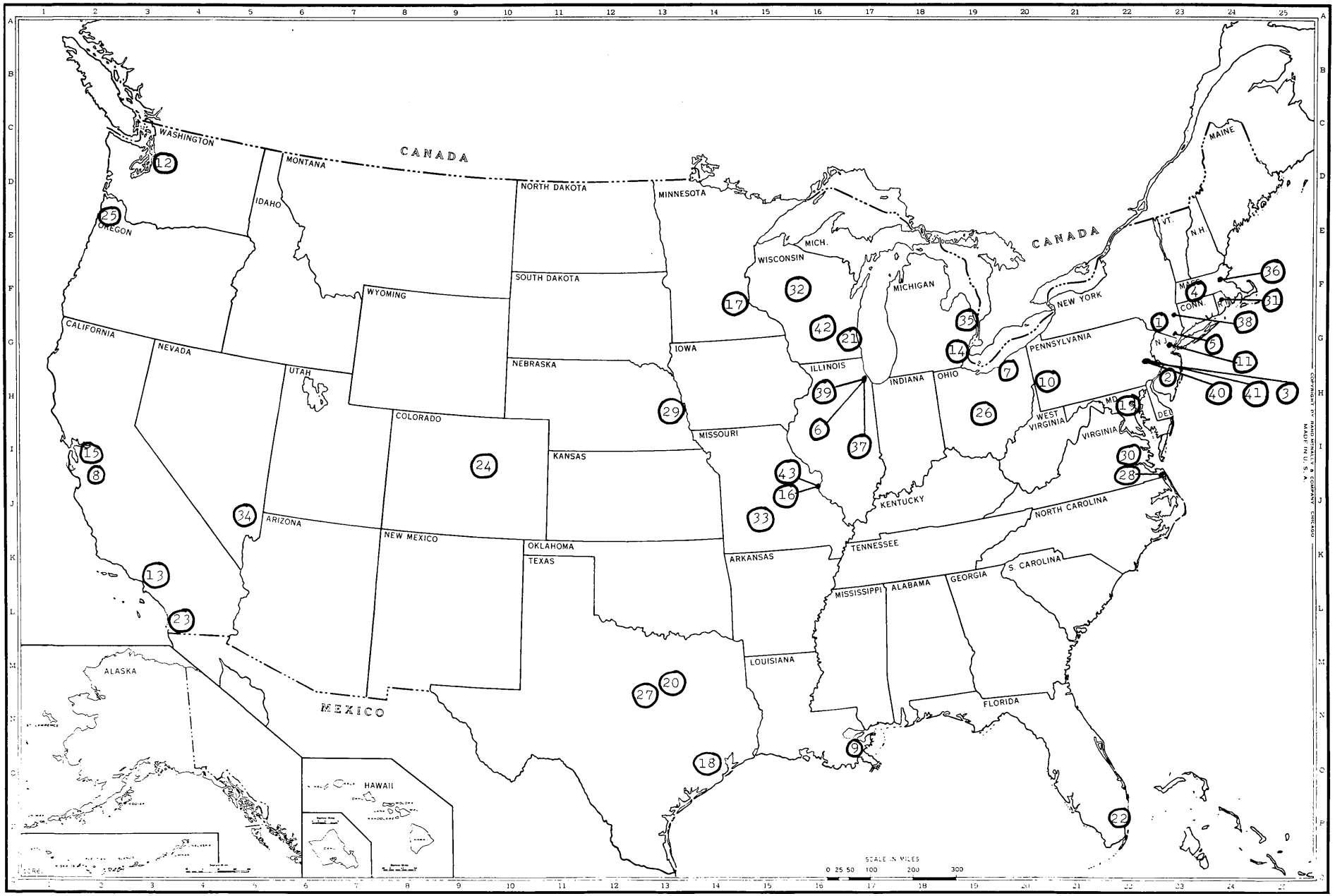
TABLE 4.1B GEOGRAPHIC DISTRIBUTION OF FIELD STUDY PARTICIPANTS



Note: Circled numbers refer to systems numbered in table 4.1A.

Of the 35 transit systems reviewed, 9 companies were under private ownership. The organizational structures of the 26 public systems reviewed may be grouped as follows:

Organizational Structure	% of Public Systems Reviewed
Municipal entity - department of a city	23%
Regional authority - separate from municipal operations	77%

In some systems operating as a department of a city, certain administrative services and their related costs were absorbed by the municipality and not reflected in the accounts of the transit system. Examples of these free services include payroll and payable processing, legal, purchasing, personnel and security services. Two other transit systems reviewed were operating as a department of a utility organization. In both of these cases, some facilities were shared by the transit, gas and electric departments. For financial reporting, some of the shared assets were not identified by department or type of service.

The transit systems operating the bus-only mode of service ranged in size from 16 buses to 2,640 buses. The number of vehicles for each system reviewed is indicated in Table 4.1A. In the small systems, one employee may perform several functions such as scheduling, dispatching, transportation and fare collection without recording the time spent on

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each function. Therefore, the cost of these functions may not be readily identifiable in the smaller systems. In the larger systems, these functions were more clearly separated by departmental organization.

Field study participants were selected from 22 different states to ensure broad geographic coverage of the industry. Table 4.1B shows the geographic dispersion of systems reviewed. Geographic factors such as weather, population density, and topography affect transit operations and corresponding costs. For example, in regions subject to cold weather and heavy snowfall, most systems have found it necessary to provide garages for parking vehicles. Their investment in physical facilities is typically larger than similar-sized systems located in warmer areas.

One transit system we reviewed is a large transit holding company. It owns and/or manages several bus systems throughout the country. In this situation, the accounting function for all transit systems is performed on a centralized basis. Standardized accounting treatment has been established for all of its operating systems, and separate financial reports are prepared for each system at the central location. In order to reflect the full cost of transit service for each subsidiary system, an allocation of the cost of the holding company’s administrative services would be required.

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We observed an apparent trend toward the increasing use of contract management services in the administration of public transit systems. This is an arrangement in which the general manager and usually a few other executives are employees of an outside management firm which has contracted with the local authority to manage the transit system for a fee. Six of the thirty-five operating transit systems reviewed were using contract management services. For accounting and financial reporting purposes, these systems generally operate as autonomous units -- separate from the management firm. The management fee is typically reported in one lump sum, not delineated by function or department.

In our field reviews, we noted that different operating methods or techniques are used for similar functions. For example, in the fare collection function, operating procedures and controls vary greatly depending upon whether the system employs registering or nonregistering fare boxes. In a nonregistering environment, the system typically has a substantial investment in money counting, security, and control equipment. With registering fare boxes, systems were found to use less resources in the counting function, but more resources to read and compute revenue received from register readings. In one system, the fare collection function was performed by an outside security firm for a fee.

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Another area with varying practices throughout the industry is electronic data processing. Among the larger systems reviewed, many were using computers as a substitute for labor in the areas of payroll, scheduling, inventory control, maintenance planning, fuel and oil consumption analysis, fare box register reconciliation, and general accounting.

The field studies covered all modes of transit service specified for Project FARE: motor buses, trackless trolleys, streetcars, rail rapid systems, and commuter rail operations. For those systems operating two or more of these modes, we found that some revenue and expense items have to be allocated in order to obtain total revenue and expense by mode. For example, revenue collections are not segregated by mode through the cash processing cycle in most transit systems. For another example, where the same maintenance facility is used to service vehicles for different modes, the costs of that facility must be allocated to the different modes to get total expense for the mode.

We found that cost determinations for commuter rail operations require a significant amount of allocations. All of the commuter rail operators have freight operations, and most of them have intercity long lines. Since some of the

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right-of-way and equipment are used jointly in all of these operations, these joint costs have to be allocated to obtain discreet totals for each type of service.

4.2 Reportability of Task I Information Elements

A summary of field study findings on the reportability of information elements described in Chapter 4 of the Task I Report is shown in matrix form in Table 4.2A. The Task I exhibits cross referenced in Table 4.2A are reproduced in this report in Appendix B. The reportability of each information element has been evaluated for each mode, as indicated in Table 4.2A according to the following codes:

R	=	currently reportable by all transit systems reviewed
N/A	=	information element not applicable for a particular mode
number	=	reference to a following clarification comment on reporting capability of the particular element

For some elements indicated by an “R” as currently reportable, there is a wide disparity among transit systems in the effort required to report the data. In this analysis, “currently reportable” means that the information element could be extracted from the existing records of the transit system. A particular transit system, however, may or may not be currently reporting this data element. For example,

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the number of stops along transit lines is information currently obtainable in all transit systems' scheduling records. For the larger systems, however, this information may be difficult to compile initially.

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TABLE 4.2A REPORTABILITY OF TASK I ELEMENTS

Reporting Elements	Cross Reference To Task I Reports* Exhibit No.	Page No.	Motor Bus	Trackless Trolley	Street Car	Rail Rapid Transit	Commuter Rail
Resource consumption classifications	4.2.1-E	4-13	1	1	1	1	1
Physical measures of resource consumption - tire miles, fuel gallons, kilowatt hours	4.2.1-F	4-14	R	R	R	R	R
Revenue vehicle inventory - miles, age, seating	4.2.1-G	4-15	R	R	R	R	R
Motor bus transit way descriptors	4.2.2-A	4-17	R	N/A	N/A	N/A	N/A
Nonbus transit way descriptors	4.2.2-B	4-18	N/A	R	R	R	R
Transit system stop descriptors	4.2.2-C	4-19	R	R	R	R	R
Transit system line descriptors	4.2.2-D	4-20	R	R	R	R	R
Characteristics of residents to whom services are provided	4.2.2-E	4-22	2	2	2	2	2
Characteristics of nonresidential centers serviced by transit systems	4.2.2-F	4-23	2	2	2	2	2
Frequency and speed information categories	4.2.2-G	4-24	R	R	R	R	R
Capacity offered information categories	4.2.2-H	4-25	3	3	3	3	3
Comfort information categories	4.2.2-I	4-26	R	R	R	R	R
Employees producing transit service	4.2.2-J	4-27	R	R	R	R	R
Annual passenger counts	4.2.3-A	4-28	4	4	4	4	4
Daily passenger counts	4.2.3-B	4-29	4	4	4	4	4
Revenue from passenger movement	4.2.3-C	4-30	5	5	5	5	5
Revenue from nonpassenger services	4.2.3-D	4-31	R	R	R	R	R
Social impact measures	4.2.4-A	4-33					
A. Fatal accident data			R	R	R	R	R
B. Nonfatal accident data			R	R	R	R	R
C. Property damage only accidents			R	R	R	R	R
D. Tops per day of pollutant emissions			6	6	6	6	6
E. Square miles of land for service			6	6	6	6	6
F. Noise - dBA			6	6	6	6	6
Nontransportation revenues	4.2.5-A	4-34	R	R	R	R	R
Subsidization and reimbursement payments by source	4.2.5-B	4-35	R	R	R	R	R
Subsidization of capital asset replacement and expansion by source	4.2.5-C	4-36	R	R	R	R	R
Balance sheet categories	4.2.5-D	4-38	7	7	7	7	8
Tangible operating property - class and age	4.2.5-E	4-39	9	9	9	9	9
Long-term debt detail	4.2.5-F	4-40	R	R	R	R	R

*These exhibits have been reproduced in Appendix B of this report for quick reference.

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COMMENTS ON ELEMENTS INDICATED AS NOT CURRENTLY REPORTABLE

1. Resource Consumption Classifications (4.2.1-E)* We found that transit systems do not generally maintain costs by the detailed breakdown of object classes specified in the Task I Report. We also found that none of the systems reviewed use the capital and activity dimensions of the Task I Report, but the dimensions being used permit translation to the capital and activity classifications in most instances.

2. Characteristics of Residents and Centers Served (4.2.2-E) No systems reviewed have this type of data available. A few have made special purpose studies to gather data about their riders, but they do not maintain the information on a continuing basis. None of the systems reviewed have attempted to capture this type of data by the prescribed distance measurements.

3. Capacity Offered (4.2.2-H) Running time, layover time, and deadhead time were desired because platform time (their sum and the more traditional measure) was considered to be a less accurate measure of capacity offered. For most systems, however, we found that it is not currently practical to get these components of platform time.

4. Passenger Counts (4.2-3-A&B) Disparity in methods for counting passengers ranges from continuing actual counts of all passengers by operators or machines to no attempt of any sort to estimate number of passengers. Many systems use an average fare formula developed from historical studies. A more refined method of having operators count other than base fare passengers on a continuing basis is used by some systems. Generally, no systems have passenger count data available by time of day, express lines versus local lines, or destination. Thus, it will be necessary to develop standard definitions for capturing this data in the FARE system.

5. Revenue from Passenger Movement (4.2-3-C) None of the systems reviewed maintained revenue data by regular service classifications and time of day. It would be possible to obtain this data from systems with registering fare collection equipment.

*The parenthetical notations refer to the Task I exhibits keyed to Table 4.2A.

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6. Pollutants, Square Miles, Noise Data (4.2.4-A) Some systems have conducted special studies in these areas, but none maintain this data on a current or continuing basis.

7. Balance Sheet Categories - Transit (4.2.5-D) All systems which operate as separate entities can provide adequate balance sheet classifications. A few systems which operate as a department of a utilities company may not be able to segregate all balance sheet items by type of service provided.

8. Balance Sheet Categories - Commuter Rail (4.2.5-D) None of the commuter rail operators develop a complete balance sheet pertaining to their commuter rail operations. However, some of their balance sheet items could be easily segregated by commuter rail, intercity passenger, and freight operations.

9. Tangible Operating Property (4.2.5-E) Detail property records showing date and cost of acquisition for each property unit were maintained at all systems reviewed with the exception of one major multi-mode system.

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Conclusions and Recommendations

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5. CONCLUSIONS AND RECOMMENDATIONS

Our work in Task II brought us into direct contact with a broad cross section of the transit industry. This direct contact included extensive follow-up on the survey questionnaire, field reviews of 43 transit systems, and inquiries from interested parties -- such as various state departments of transportation.

During this period, we have also maintained close contact with members of the Industry Control Board and the Project FARE Technical Director for the Urban Mass Transportation Administration. In the latter stages of Task II, we presented the preliminary findings of our survey to this group and reviewed tentative plans for Task III. Also, we participated in presentations of the current status of Project FARE at the 1972 annual conferences of the Institute for Rapid Transit and the American Transit Association.

From the foregoing contacts and activities, we have observed a high level of interest and industry cooperation in Project FARE. We believe that this type of support will make the products of Tasks III and IV ultimately more useful to the transit industry and other potential system users.

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5.1 Results of Task II

The primary objective of Task II was to develop a thorough, in-depth understanding of present reporting practices, capabilities, problems, inconsistencies, and differences in the transit industry. This knowledge of present industry practices is an essential prerequisite to the development of a practical approach for the candidate reporting system to be designed and tested in Tasks III and IV of this project.

The work accomplished and results obtained in Task II (summarized in Chapters 2, 3, and 4) fulfill this objective and establish the necessary basis for Task III. The results of this survey pinpoint the similarities and differences among transit entities, due to various factors, which must be carefully considered and accommodated in developing an industry-wide reporting system to satisfy the anticipated needs of potential system users.

5.2 Recommendations for Task III

Because of the significant differences among transit entities due to size, ownership, mode, custom, and other characteristics, we believe that the reporting system developed in Task III should be stratified by peer group. This stratification should help minimize reporting inconsistencies, and provide better comparability of data within each peer group. If this approach is adopted, we believe that sufficient reporting comparability should be specified among all of the groups to provide a consistent basis for industry-wide consolidation. In Task III, we will develop specific recommendations on this topic for consideration by the Industry Control Board and potential system users.

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We recognize that cost allocations may be necessary in certain instances to satisfy the reporting standards developed in this project. At the same time, we believe that excessive cost allocations may have a negative result by obscuring natural cost classifications and complicating the analysis of these data. For this reason, we recommend that the reporting structure developed in Task III minimize allocation requirements wherever possible.

Many public systems receive free services, of one type or another, from local government organizations. Generally, these services pertain to administrative or auxiliary activities rather than transit operations, per se. We recommend that this type of activity be classified in the reporting system to permit adequate disclosure and analysis of the particular situation.

In certain instances, it may be necessary to calculate imputed costs to establish better comparability among diverse systems. Because of the inherent imperfections in this type of calculation, however, we recommend that other possible solutions be fully explored and exhausted as a prerequisite. Depreciation is a case in point. Many systems record depreciation, and many systems do not. To achieve better comparability among these systems, it might be possible to (1) impute depreciation for

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those systems that do not record it, (2) impute depreciation for all systems, or (3) establish uniform accounting procedures for its treatment. To the extent feasible, we favor the latter solution as the more preferable approach.

It may be even more difficult to obtain comparable operating measures and statistics because of the wide diversity of current industry practices. Passenger count information provides an excellent example of this problem. Under current practice, there are many approaches to counting (or estimating) passengers, and many of these produce different (or imprecise) results. In this area, we propose the development of standard definitions for the calculation or measurement of uniform operating statistics.

To summarize, we were generally aware of the problem areas to be resolved in developing a uniform reporting system for the transit industry. The data developed in Task II provides the necessary specifics, plus an appreciation of the practical problems, to adopt a constructive plan of action for Task III.

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Task III Plans

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6. TASK III PLANS

The contract for Project FARE defines Task III as the development of reporting standards for the transit industry. In Task III, the data elements required (identified in Task I) will be tempered by the capability of the industry to supply the data (measured in Task II) in order to define a currently practical reporting system.

The reporting system will be designed by performing the following steps:

1. Define the strata that will make up the reporting system. There will probably be a separate stratum, i.e., reporting requirement, for each mode of transit service.

2. Identify the data elements that are to be reported for each stratum.

3. Define the reporting standard for each data element. In other words, define the accounting principles to be employed in the development of the financial and non-financial data categories to be reported via this system.

4. Design the forms on which the data are to be reported and develop instructions for the completion and submission of the forms.

5. Develop an overall system design specifying generally who reports, how often, to whom, the processing of the reported data, and the distribution of the output from the processing.

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Defining the stratification and reporting system data elements will be done on the basis of the conclusions of Tasks I and II. However, the definition of the reporting standards for each data element cannot be done on the same basis, for we found a great diversity in the application of accounting principles as we conducted Task II.

Establishing standards for accounting treatment to be used in the reporting system is expected to be the most difficult step in Project FARE. We therefore expect that the quality of the product from this step will have a great bearing on the industry's acceptance of the reporting system and, ultimately, on the successful operation of this data collection and dissemination device. We plan to involve the Industry Control Board (ICB) very heavily in this step in order to obtain industry participation in the setting of the standards.

At the ICB meeting in October, 1972, three days were devoted to preliminary discussions of accounting standards for some of the financial data elements. The participants in these discussions included the members of the ICB, UMTA's Project FARE Technical Director, project team members from Arthur Andersen & Co., and a consulting economist for the project. In the next few weeks, the project team will use the conclusions

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reached in this preliminary discussion to develop written definitions for each proposed data element in the system. Additional ICB meetings will be held in mid December, late January, and early March to review the standards that have been developed at those points and to provide direction for the standards remaining to be completed. In April, the ICB will meet again to review the draft of the Task III Report and to give its approval to the complete set of accounting standards.

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Appendix A

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APPENDIX A

In conducting the field studies of the 43 transit systems described in Chapter 2, we followed the general work program and function checklists shown on the remaining pages of Appendix A.

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UMTA FARE PROJECT

FIELD STUDY WORK PROGRAM

I. Transit system advance preparations

A. Arrange a one-hour introductory meeting with the transit system executive team. Typically, this should include persons responsible for:

general management
transit operations (transportation)
maintenance
planning and/or marketing
accounting and finance
others according to General Manager's desires

B. Distribute to the managers responsible for each function the checklists applicable to their respective responsibilities.

C. Assemble the documents requested on the function checklists. Please assemble copies that may be retained by Arthur Andersen & Co. for their project working papers.

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II. Introductory meeting

A. Explain the FARE Project and answer questions.

1. Background of project
2. Relationship to Industry Control Board
3. Purpose of project
4. Outline of project work program
5. Description of Task I Report
6. Status of questionnaires
7. Purpose of field studies

B. Develop schedule of overview meetings with each member of the executive team.

III. Overview meetings

A. Obtain overview of function(s) for which the executive is responsible.

1. Services performed
2. Organizational structure

B. Tour the physical facilities identified on the function checklist.

C. Obtain documents requested on the function checklist.

D. Schedule detail interviews with department personnel as required.

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IV. Detail interviews

A. Study function checklist items in greater depth as required. Concentrate on component subsystems, policies, and procedures which amplify questionnaire answers and which reveal capability to report data elements specified in the Task I Report.

For example, examine property accounting system records and briefly describe in writing the procedures being followed for collecting, recording, and controlling information pertinent to fixed asset accounting.

B. Perform detail interviews with lower levels of management to minimize time requirements on executive team.

C. Set scope for detail reviews in accordance with size and complexity of transit system and relevance of areas being reviewed to reporting capability.

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GENERAL MANAGEMENT

FUNCTION CHECKLIST

Documents desired

. a high level organization chart

. financial and operating reports for external reporting requirements

. financial and operating reports for internal management reporting to the executive and policy-making level

Physical facilities pertaining to general management

- general and administrative offices
- revenue collection and counting area
- data processing facilities (if any)

Discussion topics

- transit system organization and operations
- internal and external reporting practices
- management control practices (budgeting)
- sections I, VIII, and IX of questionnaire

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TRANSIT OPERATIONS
(TRANSPORTATION)
FUNCTION CHECKLIST

Documents desired

- transit operations organization chart showing number of people in each organizational entity
- system map showing route structure
- financial and operating reports for internal management reporting to the upper levels of the transit operations organization

Physical facilities pertaining to transit operations

- revenue vehicle operations station (garage)
- dispatching facilities
- representative passenger station

Discussion topics

- transit operations organization and responsibilities
- internal reporting practices
  - financial data for management control
  - operating data for operational control
- scheduling practices
- budgeting for transit operations
- sections II-A, III-A, IV-A, and V-A (as applicable) of questionnaire

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MAINTENANCE

FUNCTION CHECKLIST

Documents desired

- maintenance organization chart showing number of people in each organizational entity
- map showing location of all maintenance facilities
- financial and operating reports for internal management reporting to the upper levels of the maintenance organization

Physical facilities pertaining to maintenance

- major maintenance facility
- central and representative auxiliary storeroom

Discussion topics

- maintenance organization
- internal reporting practices
  - financial data for management control
  - operating data for operational control
    - = inventory control
    - = maintenance scheduling
    - = maintenance history
    - = major maintenance/capital project control
- budgeting for maintenance
- sections II-B & C, III-B & C, IV-B & C, and V-B & C (as applicable) of questionnaire

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PLANNING AND/OR MARKETING

FUNCTION CHECKLIST

Documents desired

. planning and marketing function organization chart

. financial and operating reports for internal management reporting to the upper levels of the planning and marketing organization

Discussion topics

. planning/marketing organization

. planning/marketing practices

- product definition

= description of service level

= measurement of service level

- product promotion

. relationship with urban area transportation planning agency

. relationship of planning to budgeting process

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ACCOUNTING AND FINANCE

FUNCTION CHECKLIST

Documents desired

- financial management (including data processing, if applicable) organization chart showing number of people in each organizational entity
- flowchart of information system
- chart of accounts and list of non-financial operating statistics maintained on a regular, systematic basis

Discussion topics

- financial and data processing organization
- component subsystems of total MIS
- financial and accounting policies
- ability to provide Task I Report data
- sections VI and VII of questionnaire

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Appendix B

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APPENDIX B

The Task I exhibits which were cross-referenced to Task II in Table 4.2A are reproduced on the following pages of Appendix B for convenience. Two page numbers are shown on each page. The 4-xx numbers are the page numbers from our Task I Report. Some of the pages from Chapter 4 of the Task I Report are not included in this report, so there are gaps in this numbering series. The B-xx numbers are a sequential numbering of the pages in this appendix.

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Exhibit 4.2.1-E

Resource Consumption Classifications Using Financial Measures for All Modes

	Transit Way and Transit Way Structures and Equipment			Passenger Revenue Equipment			Freight Revenue Equipment			Support Facilities												Not Related to Capital Classifications
										Power Plant			Network Control System			Shops and Garages			General			
	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	
Labor																						
Supervisory		X	X		X	X		X	X		X	X		X	X		X	X		X	X	
Staff and Clerical		X	X		X	X		X	X		X	X		X	X		X	X		X	X	
Direct labor		X	X		X	X		X	X		X	X		X	X		X	X		X	X	
Temporary help		X	X		X	X		X	X		X	X		X	X		X	X		X	X	

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	Transit Way and Transit Way Structures and Equipment			Passenger Revenue Equipment			Freight Revenue Equipment			Support Facilities													Not Related to Capital Classifications
										Power Plant			Network Control System			Shops and Garages			General			
	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	
Fringe benefits for employees																						
Fringe benefits distributed		X	X		X	X		X	X		X	X		X	X		X	X		X	X	
Employers' cost of workmen's compensation plan																						X
Employers' portion of FICA																						X
Employers' portion of pension plans																						X
Employers' portion of health insurance plans																						X
Employers' portion of disability insurance plans																						X
Employers' portion of unemployment insurance plans																						X
Vacation, holiday, and sick pay																						X
Other																						X

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	Transit Way and Transit Way Structures and Equipment			Passenger Revenue Equipment			Freight Revenue Equipment			Support Facilities													Not Related to Capital Classifications
										Power Plant			Network Control System			Shops and Garages			General			
	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	
Materials and supplies consumed																						
Tires and tubes (including rentals)					X			X														
Fuel					X			X														
Propulsion power					X			X														
Rail			X																			
Ties			X																			
Ballast			X																			
Other track material			X																			
Signal systems material			X												X							
Power distribution system materials			X									X										
Paving materials			X																			
Equipment maintenance parts			X			X			X			X						X				X
Other		X	X		X	X		X	X		X	X		X	X		X	X		X		X

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	Transit Way and Transit Way Structures and Equipment			Passenger Revenue Equipment			Freight Revenue Equipment			Support Facilities													Not Related to Capital Classifications
										Power Plant			Network Control System			Shops and Garages			General				
	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance		
Services consumed																							
Utilities		X	X		X	X		X	X		X	X		X	X		X	X		X	X		
Professional and Technical services		X	X		X	X		X	X		X	X		X	X		X	X		X	X		
Advertising/promotion					X			X															
Travel		X	X		X	X		X	X		X	X		X	X		X	X		X	X		
Property insurance		X			X			X			X			X			X			X			
Indemnification expenses																							
Liability insurance premiums		X	X		X	X		X	X		X	X		X	X		X	X		X	X		
Self-insurance costs (including cost of accident repairs)		X	X		X	X		X	X		X	X		X	X		X	X		X	X		

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	Transit Way and Transit Way Structures and Equipment			Passenger Revenue Equipment			Freight Revenue Equipment			Support Facilities													Not Related to Capital Classifications
										Power Plant			Network Control System			Shops and Garages			General			
	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	Consumption	Operations	Maintenance	
Nonpayroll taxes																						
Property taxes																						X
Excise taxes																						X
Sales taxes																						X
Income taxes																						X
Other taxes																						X
Depreciation and amortization	X			X			X			X			X			X			X			
Lease payments/rentals	X			X			X			X			X			X			X			
Interest on debt obligations																						X

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Exhibits 4.2.1-F and 4.2.1-G indicate additional physical unit measures for resource consumption information categories. The categories in Exhibit 4.2.1-F agree with categories for which financial measures were specified in Exhibit 4.2.1-E. The categories in Exhibit 4.2.1-G do not correspond one for one with any of the financial categories, but they cover information about revenue vehicle fleets that relates to the lease payment and depreciation financial categories.

Exhibit 4.2.1-F

Physical Measures of Resource Consumption

for All Modes of Transit Operations

Information Category	Unit of Measure
Tires and tubes for operation of passenger/ freight revenue equipment	Tire-miles
Fuel for operation of passenger/freight revenue equipment (nonelectrified modes)	Gallons
Propulsion power for operation of passenger/ freight revenue equipment (electrified modes)	Kilowatt-hours

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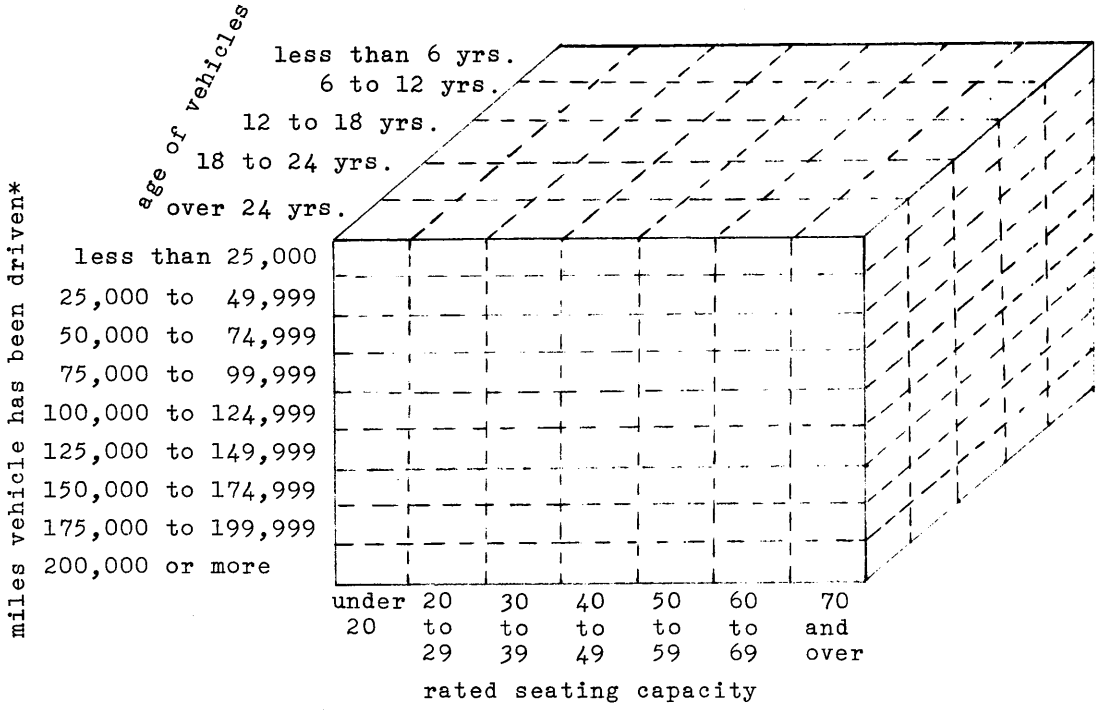
Exhibit 4.2.1-G

Revenue Vehicle Inventory

This information is desired according to three dimensions: age of vehicle, mileage vehicle has been driven and capacity of the vehicle. The matrices below portray the desired categories.



*NOTE: Ranges of numbers shown for miles driven are not representative of an actual mode. Different ranges must be developed for each mode of service.

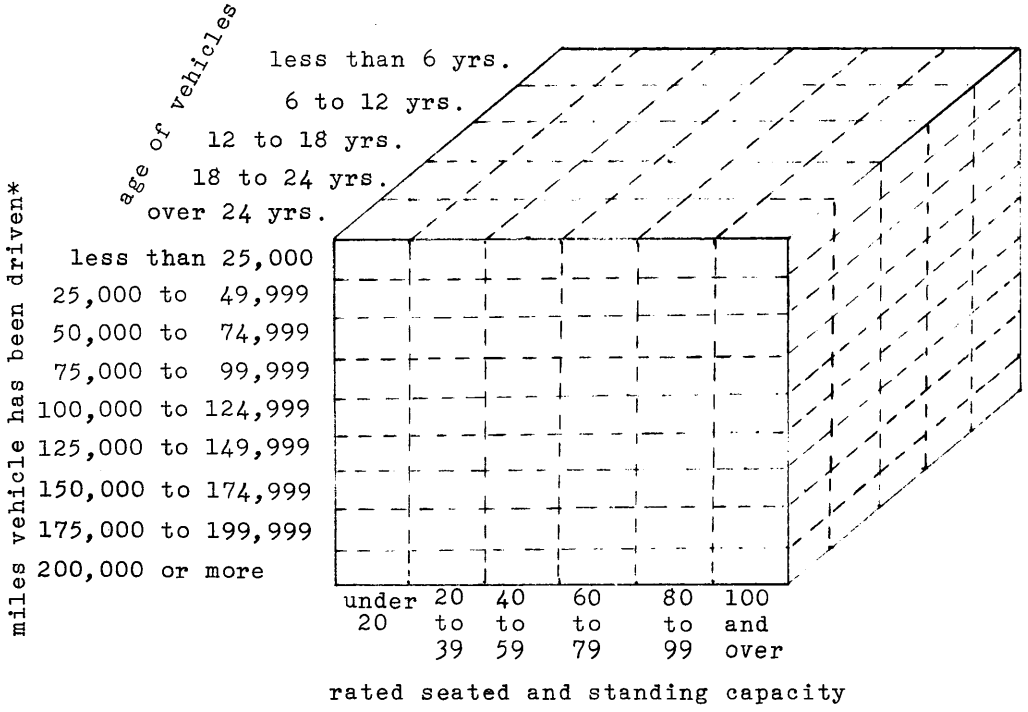


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Exhibit 4.2.2-A

Motor Bus Transit Way Descriptors

	Exclusive Busway	Reserved Lanes	Mixed Traffic
Interstate highway	(For each measure in the matrix, the miles of transit way are to be provided.)		
Freeway/expressway			
Arterial			
Collector streets			
Local streets			

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Exhibit 4.2.2-B

Commuter Rail, Rail Rapid Transit, Streetcar
and Trackless Trolley Transit Way Descriptors

	Commuter Rail	Rail Rapid Transit	Streetcar	Trackless Trolley
Electrified				
At grade - median				
At grade - separated				
At grade - other		(For each measure in the matrix, the miles of transit way are to be provided.		
Subway				
Elevated				
Non-electrified				
At grade - median				
At grade - separated				
At grade - other				
Subway				
Elevated				

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Exhibit 4.2.2-C

Transit System Stop Descriptors

	Transfer Points	Intermediate Stops	Line Ends
Major terminals			
Stations			
Shelters		(For each measure in the matrix, the total number of stops and the number of stops served by one or more express lines are to be provided.)	
Unsheltered stops			

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Exhibit 4.2.2-D

Transit System Line Descriptors

Mode	Type of Line	Time of Service: Average Weekday: AM Peak	Midday	PM Peak	Night	Sat	Sun
Commuter Rail	Express Local						
Rail Rapid Transit	Express Local						
Streetcar	Express Local	(For each measure in the matrix, the number of transit lines in operation and the miles of transit line in operation are to be provided.)					
Trackless Trolley	Express Local						
Motor Bus	Express Local						

NOTE: The time periods spread across the top of the matrix are used in many of the following exhibits. To avoid forcing respondents into standard time periods that don't fit their operations, respondents will be asked to furnish the following time points for their operations:

- weekday commencement of service
- weekday start of AM peak period
- weekday end of AM peak period
- weekday start of PM peak period
- weekday end of PM peak period
- weekday termination of service
- Saturday and Sunday commencement of service
- Saturday and Sunday termination of service

With this information, hourly rates of vehicle-miles offered, passenger-trips consumed, etc., can be calculated. The data to be reported for each category are therefore total counts for each period rather than hourly rates.

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Exhibit 4.2.2-E

Characteristics of Residents to Whom Transit Services are Offered

		Measurements Within Distance of Nearest Transit System Stop					
		Central City			Urban Fringe		
		1/8 Mile	1/4 Mile	1/2 Mile	1/8 Mile	1/4 Mile	1/2 Mile
Land area for residential use	square miles						
Single family dwelling units	number of dwelling units						
2-4 family dwelling units							
5-or-more family dwelling units							
People under 16 years of age	number of people. The totals for each of the eight dimensions shown should be equal						
People 16 to 22 years of age							
People 22 to 64 years of age							
People over 64 years of age							
Males							
Females							
Caucasians							
Blacks							
Orientals							
Spanish-Americans							
Other races							
Not handicapped							
Handicapped, but ambulatory							
Severely handicapped							
Family income under $3,000/year							
Family income $3,000-5,000/year							
Family income $5,000-10,000/year							
Family income $10,000-25,000/year							
Family income over $25,000/year							
Professional and technical							
Managerial							
Clerical							
Sales							
Operatives							
Private household workers							
Craftsmen, foremen							
Service workers							
Laborers							
Housewives							
Unemployed							
Drivers							
Non-drivers							
Family own no automobiles							
Family owns one automobile							
Family owns two automobiles							
Family owns three or more automobiles							

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Exhibit 4.2.2-F

Characteristics of Non-Residential Centers Served by Transit Systems

	Measurements Within Distance of Nearest Transit System Stop						
	Central City			Urban Fringe			
	1/8 Mile	1/4 Mile	1/2 Mile	1/8 Mile	1/4 Mile	1/2 Mile	
Land area for non-residential use							square footage
Real estate used for retail facilities							
Real estate used for wholesale facilities							
Real estate used for industrial facilities							
Real estate used for cultural/educational facilities							square footage
Real estate used for health care facilities							
Real estate used for parking facilities							
Real estate used for recreational facilities							square mileage
Peak load capacity of retail facilities							
Peak load capacity of wholesale facilities							
Peak load capacity of industrial facilities							
Peak load capacity of cultural/educational facilities							number of people
Peak load capacity of health care facilities							
Peak load capacity of parking facilities							
Peak load capacity of recreational facilities							
Employment of professional and technical							
Employment of managerial							
Employment of clerical							
Employment of sales							
Employment of operatives							number of people
Employment of private household workers							
Employment of craftsmen/foreman							
Employment of service workers							
Employment of laborers							
Employment of housewives							

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The frequency and speed component of transit service is measured by the categories presented in Exhibit 4.2.2-G

Exhibit 4.2.2-G

Transit System Frequency and Speed Information Categories

	Average Weekday					
	AM Peak	Midday	PM Peak	Night	Sat	Sun
Vehicles in operation express lines local lines				number of vehicles		
One-way vehicle trips express lines local lines				number of trips		
Average one-way trip speed express lines local lines				miles per hour		
Average vehicle trip distance express lines local lines				miles		

Note: This information should be broken down by the various modes of transit service offered by the transit system. Exhibit 4.2.1-A identifies the modes of transit service.

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The information needed to describe capacity offered is presented in Exhibit 4.2.2-H.

Exhibit 4.2.2-H

Capacity Offered Information Categories

	Average Weekday					
	AM Peak	Midday	PM Peak	Night	Sat	Sun
Seating capacity offered						
Standing capacity offered						
Seat - miles offered						
Running time						
Layover time						
Deadhead time						

Note: This information should be broken down by the various modes of transit service offered by the transit system. Exhibit 4.2.1-A identifies the modes of transit service.

The vehicle age and mileage reported in Exhibit 4.2.1-G bear significantly on the comfort of ride component of transit service. In addition, the information categories shown in Exhibit 4.2.2-I are desired to further measure the comfort aspect of transit service.

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Exhibit 4.2.2-I

Comfort Information Categories

	Cushioned Seats	Hard Seats	Air Conditioned	Not Air Conditioned
Commuter rail cars)				
Rail rapid transit cars)				
Streetcars)			(Number of vehicles for each catergory in the matrix is to be provided.	
Trackless trolley cars)				
Motor buses)				
Passenger area per seat			(Square feet)	

The components of service discussed up to this point have not covered the human input aspect of service. From one transit system to another with identical capital asset structure and utilization, the application of people can make a great difference in service offered. Therefore, the measures shown in Exhibit 4.2.2-J are desired to complete the description of transit services offered.

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Exhibit 4.2.2-J

Employees Producing Transit Service

	Average Weekday					
	AM Peak	Midday	PM Peak	Night	Sat	Sun
Regular operators - express						
Regular operators - local						
Extra operators - express						
Extra operators - local	(Number of employees for each category to be reported.)					
Line supervisors						
Security agents						
Ticket/token sales personnel						
Route and schedule information operators						

Note: For the operator categories, this information should be broken down by the various modes of transit service offered by the transit system. Exhibit 4.2.1-A identifies the modes of transit service.

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4.2.3 Transit Services Consumed

The measures of transit services consumption consist primarily of passenger count statistics indicated in Exhibits 4.2.3-A and 4.2.3-B. Exhibit 4.2.3-A covers annual counts and 4.2.3-B covers daily measures. Many of the measures indicated are not routinely collected by operating transit systems, but are obtainable through periodic special purpose studies.

Exhibit 4.2.3-A

Annual Passenger Counts

	Regular Service		
	Express Lines	Local Lines	Charter Service
Annual originating passengers (1)	(These categories are to be broken down by the modes of transit service identified in Exhibit 4.2.1-A.)		
Annual passenger line trips (2)			
Average passenger line trip length			

Note (1): The originating passenger count is incremented by one for each journey a person makes via the transit system, regardless of how many line trip segments constitute that journey.

Note (2): The passenger line trip count is incremented by one for each embarkation of a rider onto a transit system vehicle, regardless of whether or not he pays a fare upon embarkation.

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Exhibit 4.2.3-B

Daily Passenger Counts

	Average Weekday					
	AM Peak	Midday	PM Peak	Night	Sat	Sun
Passenger count-express	Number of passengers.					
Passenger count-local						
Passenger line trip count						
express lines	Number of passenger line trips.					
local lines						
Average passenger line trip length	Miles.					
express lines						
local lines						
Average passenger line trip time	Minutes.					
express lines						
local lines						
Passenger destinations-express	)					
Residence	)					
Place of employment	)					
Shopping center	)					
Cultural/educational facility	)					
Recreational facility	)					
Health care center	)					
Other	)					
Passenger destinations-local	)					
Residence	)					
Place of employment	)					
Shopping center	)	(Number of passengers for each category to be reported.)				
Cultural/educational facility	)					
Recreational facility	)					
Health care center	)					
Other	)					
Type of fare-express	)					
Regular fare	)					
School fare	)					
Senior citizen fare	)					
Handicapped person fare	)					
Free transfer	)					
Paid transfer	)					
Other	)					
Type of fare-local	)					
Regular fare	)					
School fare	)					
Senior citizen fare	)					
Handicapped person fare	)					
Free transfer	)					
Paid transfer	)					
Other	)					

Note: This information should be broken down by the various modes of transit service offered by the transit system. The modes of transit service are identified in Exhibit 4.2.1-A.

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Transportation revenues are obviously directly related to the transit services consumed, i.e., they are the financial measure of transit service consumption. The categories by which revenues are to be reported are shown in Exhibits 4.2.3-C and 4.2.3-D. The revenues from passenger movement shown in Exhibit 4.2.3-C are not routinely collected by the time periods shown. The allocation of daily revenue collections to these time periods can be accomplished using parameters that are developed and periodically validated through special purpose studies.

Exhibit 4.2.3-C

Revenue from Passenger Movement

	Average Weekday					
	AM Peak	Midday	PM Peak	Night	Sat	Sun
Regular service						
express fares						
local fares						
special fares						
Charter service						

Note: This information should be broken down by the various modes of transit service offered by the transit system. The modes of transit service are identified in Exhibit 4.2.1-A.

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Exhibit 4.2.3-D

Revenue from Non-Passenger Services

	Commuter Rail	Rail Rapid Transit	Streetcar	Trackless Trolley	Motor Bus
Goods and mail movement					
• regular freight revenue					
• express freight revenue					
• U. S. Mail revenue					
• baggage revenue					
Auxiliary operations					
• station concessions					
• vehicle concessions					
• freight and baggage storage					
• parcel room receipts					
• advertising services					

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Exhibit 4.2.4-A

Transit Operation Social Impact Measures

	Commuter Rail	Rail Rapid Transit	Streetcar	Trackless Trolley	Motor Bus
Number of fatal accidents					
Transit system passenger fatalities					
Pedestrian fatalities					
Other vehicle occupant fatalities					
Number of non-fatal injury accidents					
Transit system passengers injured					
Pedestrians injured					
Occupants of other vehicles injured					
Number of property-damage-only accidents					
Tons per day of air pollutant emissions					
• carbon monoxide					
• hydrocarbons					
• nitrous oxides					
• sulphurous oxides					
• aldehydes					
• particulate					
Square miles of land area used exclusively for transit services					
Noise-dBA (decibels on the A-scale)					

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4.2.5 Financial Condition of the Transit System

This section covers those financial measures not previously covered that are necessary to produce the statements of operations, financial condition, and sources and uses of funds for the reporting transit system.

Exhibits 4.2.5-A and 4.2.5-B cover current period revenue classifications. Exhibit 4.2.5-A covers non-transportation revenues, and 4.2.5-B covers subsidies to cover current period operating expenses.

Exhibit 4.2.5-A

Non-transportation Revenues

- Maintenance services performed for other entities.
- Vehicle rentals.
- Rent from buildings and other property.
- Investment income.
- Gain (Loss) on disposition of fixed assets.
- Other

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Exhibit 4.2.5-B

Subsidization and Reimbursement Payments

for Current Period Operations

	Source of Subsidy		
	Federal	State	Local
Cash Grants, Subsidies, and Reimbursements			
General subsidy of operating expenses			
Fare based subsidy, i.e., subsidization of reduced fares for special classes of riders			
Expense based subsidy			
Forgiveness or reimbursement of taxes			
Forgiveness or reimbursement of interest			
Special utilities rates			
Reimbursement of transit system maintenance expense			
Reimbursement of snow removal costs			
Reimbursement of security costs			
Other			
Subsidies in Kind			
Security services			
Snow removal			
System maintenance and repairs			
Other			

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Exhibit 4.2.5-C covers certain types of subsidies that amount to equity transactions. These categories would be reported on the statement of financial condition, not on the statement of operations.

Exhibit 4.2.5-C

Subsidization of Capital Asset Replacement/Expansion

	Source of Subsidy		
	Federal	State	Local
Cash grants for replacement or expansion of capital assets.			
Forgiveness or reimbursement of sales and/or excise taxes on purchase of capital assets			
Provision of services in kind during capital replacement/ expansion project.			
Other			

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Exhibit 4.2.5-D

Miscellaneous Balance Sheet Categories

Current Assets

- Cash
- Receivables
- Material and supplies inventory
- Other current assets

Tangible Operating Property (see Exhibit 4.2.5-E)

Non-operating Tangible Property

Intangible Assets

Investments and Special Funds

Deferred Charges

Other Debit Items

Current Liabilities

- Trade payables
- Accrued payroll liabilities
- Accrued tax liabilities
- Current portion of long-term debt
- Other current liabilities

Unfunded Pension Liability

Deferred Credits

Equity

- Investment in transit system
- Capital grants
- Unrestricted accumulated earnings (loss)
- Restricted reserves

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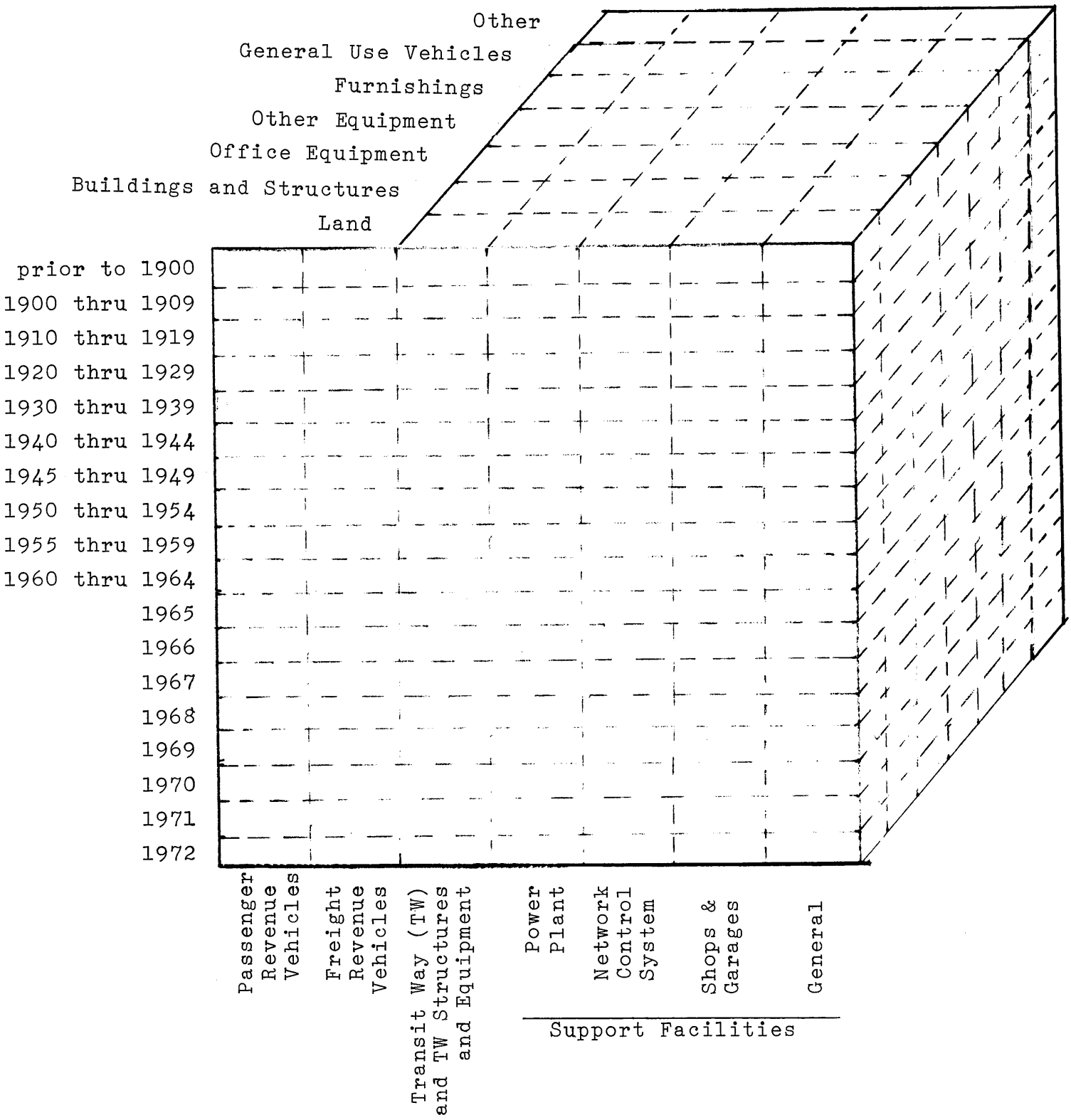
Exhibit 4.2.5-E

Tangible Operating Property



For each category shown in the matrix, the cost basis of property acquired in that period and the cost basis of property of that period's vintage that has been retired are to be reported.

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Exhibit 4.2.5-F

Long-Term Debt

	Equipment Obligations	Bonds	Other Long-Term Debt Instruments
Date of issue			
Face value of issue			
Premium (discount) on issue			
Nominal interest rate			
Retired at reporting date			
Retirement required in next year			
Retirement required in second year			
Retirement required in third-year			
Retirement required in fourth year			
Retirement required in fifth year			
Retirement required after fifth year			

Note: This information is required for each issue of a long-term debt instrument for which a liability existed at the reporting date.

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