United States General Accounting Office

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Report to the Honorable William H. Gray, III, House of Representatives

December 1989

MASS TRANSIT GRANTS

UMTA Needs to Increase Safety Focus at Local Transit Authority

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GAO

United States
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Resources, Community, and
Economic Development Division

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December 1, 1989

The Honorable William H. Gray, III
House of Representatives

Dear Mr. Gray:

This is our second report responding to your request that we review the Urban Mass Transportation Administration's (UMTA) oversight of the Southeastern Pennsylvania Transportation Authority (SEPTA). On March 31, 1989, we issued a report to you on our evaluation of the adequacy of UMTA's oversight of SEPTA's procurement system.[1] Because of your concern that SEPTA had received millions of dollars in grant assistance with no apparent improvement in transportation services, we also agreed to (1) identify any trends in SEPTA's safety conditions, (2) review UMTA's role in monitoring the safety of SEPTA's transit system, and (3) determine the factors, including safety, that UMTA considers in approving grant assistance to SEPTA.

Since 1984, SEPTA has received $738 million in UMTA grant funds to assist its transit system. SEPTA provides public transportation service for Philadelphia and four surrounding counties. The system includes motor bus, trolley bus, streetcar, and three rapid rail lines that transport 1.2 million passengers daily and eight commuter rail lines that carry about 90,000 passengers daily.

Results in Brief

Studies of SEPTA's commuter rail and rapid rail lines disclosed safety problems in 1983 and 1984 (see app. I). Our review of SEPTA's safety data showed that while improvements have been made in the commuter rail and rapid rail safety conditions, there have been upward trends in the accident and injury rates for motor bus, trolley bus, and streetcar transportation modes. Furthermore, our review showed that UMTA's oversight has not been adequate to assess SEPTA's safety conditions. We found that UMTA does not collect detailed information on the types and causes of SEPTA accidents and injuries and, consequently, has little basis to emphasize safety during its triennial review of SEPTA operations and to determine whether a safety investigation should be initiated. The UMTA safety investigation conducted at SEPTA was limited to only one of the three rapid rail lines.

[1] Mass Transit Grants: UMTA Needs to Improve Procurement Monitoring at Local Transit Authority (GAO/RCED-89-94, Mar. 31, 1989).

Further, we found that UMTA did not consider safety in approving SEPTA's annual programs of projects, and that SEPTA only recently developed a formal process for assessing the safety importance of proposed projects. Consequently, UMTA has little assurance that its formula and discretionary grant awards are being used to improve safety conditions. We also noted instances where UMTA's grant funding decisions were not consistent with SEPTA's funding priorities. UMTA did not explain why its funding decision differed from SEPTA's, which impeded SEPTA's planning process.

Finally, we were unable to determine the specific factors the UMTA Administrator considered in awarding discretionary grants to SEPTA because documentation supporting the basis for the awards was not maintained at the UMTA program level. Without such documentation it is not possible to determine from the records why the UMTA Administrator selected some projects for funding over others. We view the lack of written justification for grant award decisions as a serious flaw in UMTA's grant approval process. Documenting UMTA's discretionary grant awards would help ensure that the process is open, fair, and that the proper analyses are made to support grant award decisions.

Background

The Urban Mass Transportation Act of 1964, as amended (49 U.S.C. App. 1601 et seq.), authorizes UMTA to provide mass transportation assistance through two primary grant programs—the Section 3 Discretionary Grant Program and the Section 9 Formula Grant Program. (App. II discusses these programs in detail.) SEPTA has received over $1.8 billion from UMTA during the past 23 years and has used these funds primarily for capital improvements, such as the acquisition of buses and trains, and for operating costs. For fiscal years 1984 to 1988, SEPTA received 27 section 3 grant obligations totaling $339 million and 10 section 9 grant obligations totaling $398 million.

UMTA believes that it has broad safety authority under Section 22 of the Urban Mass Transportation Act, including discretionary authority to require correction or elimination of safety hazards by UMTA-funded transit authorities. Specifically, section 22 authorizes the Secretary of Transportation to investigate and determine the nature and extent of potentially unsafe conditions, require the transit authority to submit a plan for correcting or eliminating unsafe conditions, and withhold federal funds until the transit authority implements the UMTA approved plan. In addition, UMTA requires transit authorities to report safety information under the reporting system required by section 15, and it

has included a safety element in triennial reviews required by Section 9(g)(2) of the Urban Mass Transportation Act. UMTA also provides safety training, research, and technical assistance to transit authorities.

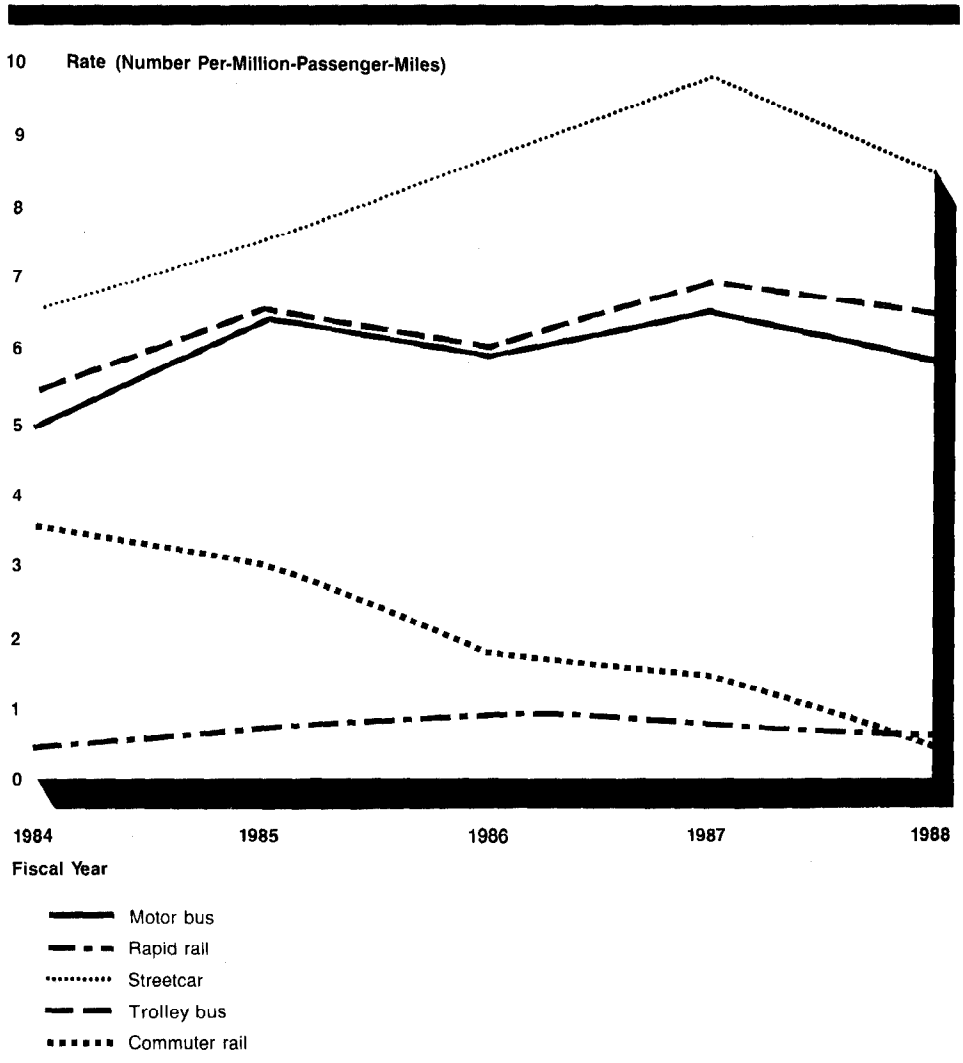
Trends in SEPTA's Safety Conditions Indicate Problems May Exist

Our analysis of SEPTA safety data indicates that there has been a general downward trend since 1985 in the accident and injury rates for the SEPTA transit system; but the rates for certain modes have actually increased. While improvements have been made in commuter rail and rapid rail safety conditions, there have been upward trends in the accident and injury rates for the motor bus, trolley bus, and streetcar modes. To identify any improvements or trends in safety conditions, we compared UMTA section 15 information reported by SEPTA on accidents, injuries, and fatalities for fiscal years 1984 to 1988.[2] We did not compare SEPTA safety data with the data submitted by other transit authorities because their interpretation of what constitutes an accident may be inconsistent. However, we found no evidence that SEPTA was inconsistent in reporting its safety data over the years, and we believe that the section 15 data are adequate to identify trends in SEPTA's safety conditions.

Between 1984 and 1988, SEPTA reported a total of 23,238 accidents that resulted in 19,491 injuries and 137 fatalities (see app. III). According to SEPTA officials, however, most fatalities involved trespassers and suicides. SEPTA also reported a total of 6.8 billion passenger miles provided during the 5-year period (see app. IV). We used this safety data to compute the rate (number per-million-passenger-miles) of SEPTA accidents, injuries, and fatalities (see app. V). We analyzed increases and decreases in the number of passenger miles and the number of accidents, injuries, or fatalities to determine the reason for any upward or downward trends in the rates. For example, increases in the number of accidents or decreases in the number of passenger miles would tend to increase the accident rate. For each SEPTA transportation mode, figure 1 shows trends in the rate of SEPTA accidents and figure 2 shows trends in the rate of SEPTA injuries.

[2]UMTA's section 15 annual reports provide, by transit authority and mode, a yearly breakdown of accidents, injuries, and fatalities. Accidents are defined as incidents involving revenue or nonrevenue vehicles or stations in which there is property damage, personal injury, or fatality.

Figure 1: Rate of SEPTA Accidents (1984-1988)

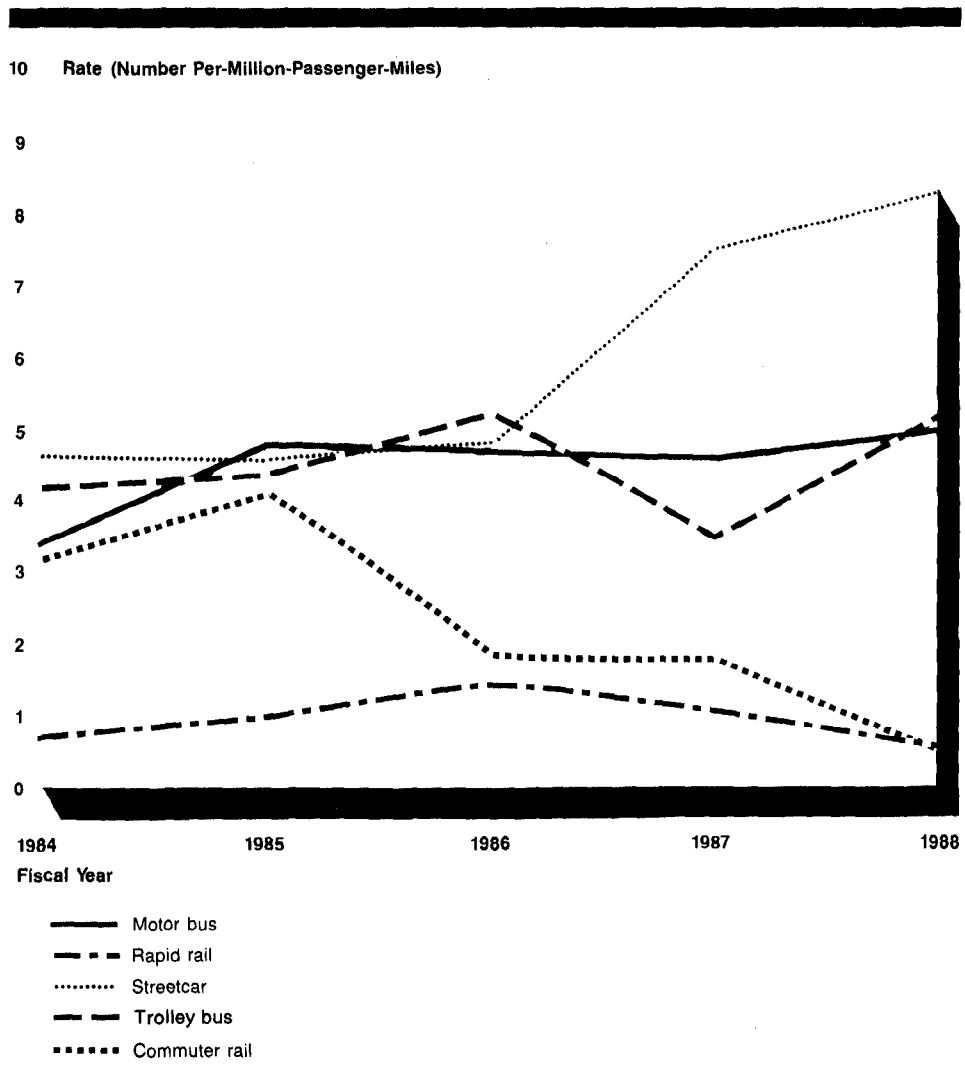


Source: Prepared by GAO from UMTA's section 15 data.

As shown in figure 1, the rate of commuter rail accidents declined dramatically, from 3.5 to 0.4 accidents per-million-passenger miles. This downward trend resulted from not only a reduced number of accidents, but also an increased number of commuter rail passenger miles provided. The rapid rail accident rate increased through 1986 before declining slightly in 1987 and 1988. However, SEPTA's streetcar and trolley bus modes had the highest accident rates each year and tended to increase during the 5-year period. These upward trends resulted from a general increase in the number of streetcar accidents (from 719 to 828) and trolley bus accidents (from 127 to 138). Wide up and down fluctuations in

the number of motor bus accidents and passenger miles resulted in similar fluctuations in the motor bus accident rate, which also tended to increase during the period.

Figure 2: Rate of SEPTA Injuries (1984-1988)



Source: Prepared by GAO from UMTA's section 15 data.

Figure 2 shows that SEPTA's streetcar, trolley bus, and motor bus modes had the highest injury rates each year, while the rapid rail and commuter rail injury rates generally declined during the period. Our analysis of the SEPTA injury data from 1984 to 1988 showed that

- the streetcar injury rate rose from 4.7 to 8.3 injuries per-million-passenger-miles as the number of injuries increased 56 percent and the number of passenger miles decreased 11 percent,
- the trolley bus injury rate rose from 4.2 to 5.2 injuries per-million-passenger-miles as the number of injuries increased 12 percent and the number of passenger miles declined 9 percent,
- the motor bus injury rate rose from 3.4 to 5.0 injuries per-million-passenger-miles as the number of injuries increased 36 percent and the number of passenger miles declined 6 percent,
- the rapid rail injury rate fell from 0.7 to 0.6 injuries per-million-passenger-miles as the number of injuries decreased 37 percent and the number of passenger miles decreased 22 percent, and
- the commuter rail injury rate fell from 3.2 to 0.5 injuries per-million-passenger-miles as the number of injuries decreased 72 percent and the number of passenger miles increased 88 percent.

UMTA's Monitoring Has Not Adequately Assessed SEPTA's Safety Conditions

UMTA's safety oversight has not been adequate to assess the safety condition of SEPTA's transit system. Safety data collected at SEPTA by UMTA are too incomplete to determine the types and causes of accidents, injuries, and fatalities. In addition, UMTA's triennial review of SEPTA's operations did not emphasize safety, and its section 22 safety investigation was limited to only SEPTA's Norristown High-Speed Line, one of the three rapid rail lines.

Section 15 Safety Data Are Incomplete

UMTA's section 15 reporting system collects little detailed information on the types and causes of accidents, injuries, and fatalities. Without such information, we do not believe that UMTA can adequately assess the nature and extent of potentially unsafe conditions at SEPTA, and, when necessary, has little basis to evaluate plans for correcting or eliminating unsafe conditions or to withhold grant funds until safety conditions have improved.

While some information on the types and causes of accidents is available on SEPTA's commuter rail and rapid rail systems, UMTA does not obtain detailed information for the modes that have the highest accident and injury rates—motor bus, trolley bus, and streetcar. SEPTA is required to report information on certain commuter rail accidents to the Federal Railroad Administration (FRA).[3] We analyzed FRA accident data to determine the types and causes of SEPTA commuter rail accidents. Since 1983

[3]FRA currently defines an accident as a collision, derailment, and other occurrence for which damages to railroad equipment and track exceed $5,700.

SEPTA has reported 59 accidents to FRA, resulting in $3.3 million in property damages and 422 injuries. As shown in appendix VI, the major type of accident was rail-highway crossing accidents (20), followed by derailments (14), collisions (12), obstructions (4), and other (9). By far, human error (26) was the primary cause for most accidents, especially for derailments and collisions.

In addition, SEPTA voluntarily reports information on certain types of rapid rail accidents and injuries to UMTA's Safety Information Reporting and Analysis System (SIRAS). UMTA's SIRAS reports since 1983 show that SEPTA reported 11 rapid rail accidents and 1,112 casualties, including 1,104 injuries and 8 fatalities. The types of accidents reported included collisions with persons (4), other trains (4), and obstacles (1). Also, two accidents involved fires. Overall, over 70 percent of the reported casualties involved individuals in the train stations or boarding or alighting trains. Less than 30 percent of the reported casualties involved train passengers or occurred as a result of train accidents.

UMTA Did Not Emphasize SEPTA Safety During Triennial Review

UMTA completed its first triennial review of SEPTA in December 1986 and issued a report on its findings in July 1987. Although safety is one of 19 specific areas covered during a triennial review, the report did not draw conclusions or make recommendations with regard to SEPTA's safety program because of an ongoing safety investigation. We reviewed the documentation supporting UMTA's triennial review and found that UMTA did not adequately address the safety conditions of SEPTA's transit system.

UMTA recognized in its report that recent SEPTA accidents may indicate potentially unsafe conditions, but UMTA did not have sufficient detailed information to identify what these unsafe conditions might be. During the triennial review, SEPTA officials informed UMTA that SEPTA records did not indicate an upward trend in accidents for the transit system. As shown in figure 1, however, there is an upward trend in the accident and injury rates for several SEPTA transportation modes—motor bus, trolley bus, and streetcar. In addition, SEPTA provided UMTA a copy of its April 1986 system safety program plan. However, supporting documentation showed no evidence that UMTA evaluated the adequacy of SEPTA's safety plan. We reviewed the safety plan and found that it generally stressed SEPTA's organizational safety responsibilities rather than specific objectives on how to reduce accidents and improve safety. According to SEPTA officials, SEPTA's safety plan is consistent with UMTA guidelines, which do not require specific safety goals and objectives.

Section 22 Investigation Restricted to One Rapid Rail Line

In April 1987, UMTA initiated a section 22 safety investigation to evaluate SEPTA's Norristown High-Speed Line, one of three rapid rail lines (see app. I). The evaluation identified 39 potentially unsafe conditions, such as obsolete equipment and deteriorated facilities, equipment, and physical plant, and concluded, among other things, that SEPTA's distribution of capital and operating funds left correction of some safety conditions unresolved or excessively delayed.

However, UMTA's investigation was so targeted that it did not address the safety conditions of SEPTA's transit system, even though SEPTA safety data indicated that all other transportation modes had higher accident and injury rates than the rates for rapid rail. Although the data showed improvement in the rapid rail safety conditions since 1986, it also indicated potential safety problems in the other transportation modes. Without detailed information on the types and causes of accidents and injuries for these transportation modes, however, we believe that UMTA has little basis to identify unsafe conditions, to withhold grant funds if unsafe conditions have not been corrected, or to determine whether another safety investigation at SEPTA should be initiated.

UMTA Has Little Assurance That Grants Are Used to Improve Safety Conditions at SEPTA

Although SEPTA has primary responsibility for the safety of its transit system, UMTA believes that it has discretionary authority to require correction or elimination of safety hazards, as well as authority to withhold grant funds until agreed to corrective actions are implemented. UMTA's safety oversight, however, is of little use in making funding decisions during the grants' planning and approval processes. Consequently, UMTA has little assurance that grants are being used to improve safety conditions at SEPTA.

Planning Process Required for Grant Assistance

Before receiving grant assistance, SEPTA is required by the Urban Mass Transportation Act to participate in a local planning process for the Philadelphia-New Jersey urban area. This planning process is discussed in appendix VII. The Transportation Improvement Program developed during the planning process includes a program of projects establishing funding priorities among the proposed projects. Prior to fiscal year 1989, SEPTA had no formal means of assessing the importance of proposed projects, and its capital programming process was based on a general consensus among SEPTA officials of the projects that needed funding. Moreover, we found no evidence that UMTA considered safety in reviewing and approving SEPTA's annual programs of projects.

For fiscal year 1989, SEPTA implemented a formal capital planning, programming, and budgeting process that ranked each proposed project based on 12 factors, with safety and service quality weighted as the dominant factors. Although SEPTA's safety department did not provide input into this process, a SEPTA safety official said that he generally agreed with the project priority list. According to SEPTA officials, all projects proposed for funding are directly or indirectly related to safety because of the deteriorating state of the transit system.

Grant Approval Processes Differ

UMTA's section 3 and section 9 grant approval processes differ. (See discussion in appendix VIII.) Projects must be listed on SEPTA's program of projects to receive UMTA grant assistance. Section 9 grant funds are apportioned to urban areas based on a statutory formula. According to an UMTA regional office official, UMTA's approval of SEPTA's section 9 grant applications is basically a formality, requiring only a check to determine whether proposed projects are included on the annual program of projects.

In contrast to section 9 grants, SEPTA must compete with other grantees for section 3 funds. After reviewing section 3 grant applications to determine that all eligibility requirements are met, the UMTA regional office prepares a demand analysis, using UMTA headquarters guidance, which ranks (1) rail modernization projects within the urban area by grantee and (2) bus projects within five priority classes on a regionwide basis. Each regional office sends its demand analysis to UMTA headquarters where they are aggregated into a demand list of proposed projects. The UMTA Administrator uses this list in awarding section 3 grants. We reviewed UMTA headquarters and regional office records and files and found that UMTA did not consider SEPTA's safety needs in developing either the demand analyses or the demand list. Except for the demand list of projects, we were unable to determine the specific factors the UMTA Administrator considers in awarding section 3 grants. According to UMTA officials, there are no written selection criteria on the factors that should be considered and no documentation is maintained at the program level supporting the basis for the awards.

The discretionary grant award process is a potentially vulnerable area for review under the Federal Managers' Financial Integrity Act of 1982 (31 U.S. C. 3512(b)). In a prior study, we concluded that the process should include independent application reviews that consistently apply written program evaluation criteria and written justification for award

decisions.[4] The Department of Housing and Urban Development's Office of Inspector General has also pointed out the importance of documenting key funding decisions. For example, the Inspector General recently reported that the undocumented funding allocation process and the lack of clear, written policy and guidelines for the moderate rehabilitation housing program contributed to control weaknesses that could potentially result in excess assistance payments of over $400 million.[5]

The absence of adequate documentation of the section 3 grant approval process is indicative of a material internal control weakness. Good internal control practices dictate that documentation be complete and accurate to show that appropriate analyses have been done to support decisions.[6] Written documentation would help ensure that UMTA's section 3 grant awards are open, fair, and that the proper analyses are made to support grant award decisions.

We compared SEPTA's project priorities with projects UMTA funded in fiscal years 1986 and 1987 and found that section 3 grant awards were not always consistent with SEPTA's funding priorities. For example, in fiscal year 1987, SEPTA received funding for its first, fifth, and seventh priority projects, but not for its second, third, fourth, and sixth priority projects. While not all SEPTA priority projects can be expected to be funded each year, UMTA does not maintain adequate documentation of the awards process to explain why its funding decisions differ from SEPTA's project priorities. According to SEPTA officials, UMTA's inconsistent funding decisions impede SEPTA's planning, programming, and capital budgeting process.

Conclusions

Increasing trends in SEPTA's streetcar, trolley bus, and motor bus accident and injury rates indicate that safety problems exist. However, UMTA's oversight has not been adequate to assess SEPTA's safety conditions. Consequently, UMTA has little assurance that grants are used to improve safety conditions at SEPTA.

[4]Discretionary Grants: Opportunities to Improve Federal Discretionary Award Practices (GAO/HRD-86-108, Sept. 15, 1986).

[5]Audit of Section 8 Moderate Rehabilitation Program, Office of Inspector General, Department of Housing and Urban Development, April 26, 1989.

[6]The Standards for Internal Controls in the Federal Government issued by the Comptroller General in 1983 requires that all transactions and significant events be clearly documented and readily available for examination.

UMTA can bring about safety improvements at SEPTA by giving its existing monitoring process more of a safety focus. Good safety information is fundamental to safety oversight. UMTA needs to collect more complete and accurate information on SEPTA accidents and injuries and their causes. UMTA could either request SEPTA to provide the information periodically or, on a broader level, revise its section 15 reporting requirements to collect the information from all grantees. Furthermore, UMTA should use the safety information it collects to evaluate safety conditions during its triennial review of SEPTA operations and to determine whether further safety investigation of SEPTA's transit system is warranted. Moreover, UMTA should use the safety information as one basis for approving SEPTA's annual program of projects and in making grant funding decisions. During the next triennial review at SEPTA, UMTA needs to follow-up on the safety problems identified during its safety investigation and by any other sources to ensure that appropriate corrective actions are being taken to improve safety.

Finally, UMTA needs to improve its internal controls by recording and maintaining documentation supporting section 3 grant funding decisions and by providing SEPTA with explanations about funding decisions that differ from SEPTA's priorities. Such explanations could enhance competition in subsequent funding proposals and promote accountability for award decisions.

Recommendations

We recommend that the Secretary of Transportation direct the Administrator, UMTA, to

- obtain more complete and accurate information on SEPTA accidents and injuries and their causes and use this information in (1) evaluating SEPTA's safety conditions during triennial reviews at SEPTA, (2) determining whether further safety investigation at SEPTA is warranted, (3) approving SEPTA's annual program of projects, and (4) making section 3 grant funding decisions;
- follow-up on the safety problems identified by the section 22 investigation and by other sources during the next triennial review at SEPTA; and
- maintain documentation of the section 3 grant awards process and provide an explanation to SEPTA when funding decisions differ from SEPTA's priorities.

Views of Agency Officials

We discussed the draft report's contents with UMTA headquarters and SEPTA officials and have incorporated their comments where appropriate. However, as requested by your office, we did not obtain official agency comments. UMTA officials generally agreed with our recommendations to obtain more detailed safety information from SEPTA and to follow-up on safety problems identified in the section 22 safety study during the next triennial review. However, the UMTA officials did not agree with our recommendation that the Administrator document the section 3 awards process. The officials said that because the program provides discretionary, not full competition, grants there is no need to maintain detailed documentation supporting funding decisions (see app IX).

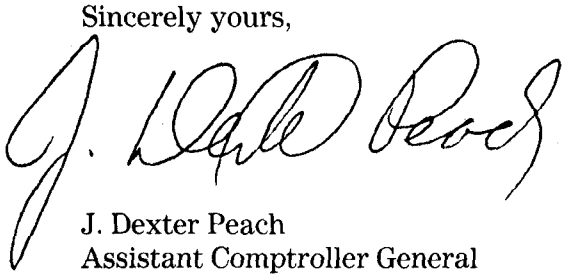
We disagree, however, and believe that competition in assistance programs should be encouraged, where appropriate. We view the lack of written justification for award decisions as a serious flaw in UMTA's section 3 grant approval process and a potentially vulnerable area for review under the Federal Managers' Financial Integrity Act. Maintaining documentation supporting grant awards, as required by federal internal control standards, would help ensure that the process is open, fair, and that the proper analyses are made to support grant award decisions.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time we will send copies to the Secretary of Transportation; the Deputy Administrator, UMTA; the Chief Operations Officer/General Manager, SEPTA; and other interested parties. Copies will also be provided to others upon request.

We performed our work for this review from November 1988 to October 1989 in accordance with generally accepted government auditing standards. Appendix X contains details of our objectives, scope, and methodology. This work was performed under the direction of Kenneth M.

Mead, Director, Transportation Issues, (202) 275-1000. Other major contributors are listed in appendix XI.

Sincerely yours,



J. Dexter Peach
Assistant Comptroller General

Contents

Figures

Abbreviations

FRA	Federal Railroad Administration
GAO	General Accounting Office
SEPTA	Southeastern Pennsylvania Transportation Authority
SIRAS	Safety Information Reporting and Analysis System
UMTA	Urban Mass Transportation Administration

Summary of Studies on SEPTA System Safety

In 1983 and 1984, the number and frequency of accidents on SEPTA's commuter rail and rapid rail lines raised serious concerns about the safety of the SEPTA rail system. This concern prompted several government agencies to undertake various safety reviews and investigations at SEPTA.

SEPTA/Coleman 1985 Study

In January 1985, SEPTA commissioned a comprehensive study of the commuter rail system by former Secretary of Transportation William T. Coleman, Jr. The Coleman study, issued in May 1985, concluded that the commuter rail system was not unsafe at that time and could be operated safely in the future if the employees followed SEPTA's operation rules. To improve safety, the Coleman study recommended that SEPTA should, among other things, upgrade the physical condition of its train stations and maintenance facilities and develop a comprehensive accident data base to analyze accidents for the purpose of determining what is appropriate action to solve safety problems.

FRA 1985 Safety Assessment

The Federal Railroad Administration (FRA), which monitors railroad compliance with federal railroad safety rules and regulations, conducted a safety assessment of SEPTA's commuter rail system in April 1985. In its October 1985 report,[1] FRA found that SEPTA's operating procedures were improving but concluded that serious safety problems existed in SEPTA's commuter rail operations. These safety problems included inadequacies in training and testing; questionable and potentially dangerous operating practices; record and data deficiencies; and continued use of worn, antiquated, and deteriorated equipment.

In June 1986,[2] FRA reported that although SEPTA had made progress in addressing some of the concerns and recommendations expressed during the 1985 assessment, very little initiative had been taken on many other areas of concerns. Of particular concern to FRA was that SEPTA had done very little to provide needed improvements in employee safety programs and policies.

[1] 1985 Safety Assessment: Southeastern Pennsylvania Transportation Authority (SEPTA), FRA, October 1985.

[2] Southeastern Pennsylvania Transportation Authority (SEPTA): 1986 Followup Inspection, FRA, June 1986.

GAO 1986 Review of SEPTA

In January 1986, we reported the results of a study at SEPTA that, among other things, compared SEPTA's safety record with other commuter rail systems.[3] During 1984, six train accidents, some involving passenger injuries, occurred on SEPTA's commuter rail lines. This number was higher than the number of accidents experienced by four other commuter rail systems in the Northeast United States, although SEPTA carried fewer passengers than three of these commuter rail systems. According to SEPTA data, human error during adverse weather conditions was the most frequent cause of SEPTA train accidents.

UMTA 1987 Section 22 Safety Investigation

In April 1987, the Secretary of Transportation, as authorized by Section 22 of the Urban Mass Transportation Act, directed UMTA to initiate a safety evaluation of SEPTA's Norristown High-Speed Line, which is part of the rapid rail system. In a September 1987 report,[4] Battelle Memorial Institute, who conducted the section 22 evaluation, concluded that SEPTA management had failed to detect and react promptly to conditions at the Norristown line as they occurred. The report pointed out that while progress had been made in management, training materials, recertification, and car maintenance, SEPTA did not fully recognize the extent of change needed. In addition, the report concluded that SEPTA's distribution of capital and operating funds left correction of some safety conditions unresolved or excessively delayed. Overall, the report identified 39 individual conditions of concern that, together, created the potential for serious safety hazards. For example, the evaluation found that SEPTA management was inadequate for the line's needs; obsolete equipment resulted in excessive dependence on strict compliance with rules and procedures; and inadequate inspection and maintenance of the deteriorated facilities, equipment, and physical plant resulted in an inordinate number of opportunities for hazards.

In May 1989, UMTA approved SEPTA's March 1989 plan to address the concerns raised in the section 22 evaluation. SEPTA's plan noted actions that had already been taken, such as changes to its organizational structure and plans to procure a new signalling system and new cars. SEPTA also developed a funding plan for all Norristown line capital improvement projects and grants, developed a bridge improvement plan, and plans to update its System Safety Plan to ensure that the activities listed

[3]Mass Transit: Information on SEPTA Commuter Rail Operations, (GAO/RCED-86-46, Jan. 21, 1986).

[4]Safety Evaluation of the Norristown High-Speed Line, Battelle, Sept. 1987.

in the section 22 evaluation are carried out and that SEPTA continuously identifies and controls other possible safety concerns and hazards.

Description of UMTA Sections 3 and 9 Grant Programs

The federal government funds mass transportation activities through several grant programs authorized by the Urban Mass Transportation Act of 1964, as amended. The Surface Transportation Assistance Act of 1982 (Public Law 97-424), enacted January 6, 1983, amended the Urban Mass Transportation Act and changed the overall federal mass transportation assistance programs. The 1982 act intended, in part, to (1) turn much of the control over the use of federal mass transportation funds to state and local officials and (2) reduce the paperwork burden by simplifying the grant application and review process. To accomplish these objectives, the 1982 act (1) changed the Section 3 Discretionary Grant Program, (2) terminated the Section 5 Formula Grant Program, and (3) authorized a new Section 9 Formula Grant Program.

Section 3 Discretionary Grant Program

Until the 1982 act, the Section 3 Discretionary Grant Program had been the principal federal resource for capital investment in public transportation. Currently, the section 3 program consists of three investment categories: (1) modernization of older rail transit systems, (2) bus needs not met by formula funding, and (3) new fixed guideway transit systems.[1] The act also moved the discretionary grant program from general revenues to funding from user fees on gasoline. The program limits the maximum federal share of capital projects to 75 percent of the project's net cost (the portion of costs not financed from farebox revenues).

Section 9 Formula Grant Program

The Section 9 Formula Grant Program replaced the Section 5 Formula Grant Program in fiscal year 1984. Since then, section 9 grants have become the principal source for federal mass transportation assistance to urban areas (areas of 50,000 population or more). Section 9 funds are apportioned to urban areas based on a statutory formula that uses population data from the latest federal census (1980) and certain operating statistics of transit authorities eligible to receive section 9 funds.[2] Transit authorities in urban areas annually submit information on their service and ridership—fixed guideway directional route miles, bus and fixed guideway vehicle revenue miles, and bus and fixed guideway vehicle passenger miles—that is used to distribute section 9 funds.

[1] Fixed guideway means any separate right-of-way or rails for the exclusive use of public transportation service such as express highway lanes for buses and other high occupancy vehicles or subway rail lines.

[2] Under Section 15 of the Urban Mass Transportation Act, as amended, the Secretary of Transportation has developed and prescribed a reporting system to accumulate public mass transportation financial and operating statistics.

Section 9 funds can be used for planning and capital purposes, with generally up to an 80-percent federal share of the costs, and for operating assistance, with up to a 50-percent federal share. For planning purposes, the program provides supplemental funds to support planning needs that cannot be accommodated under the section 8 program.[3] For capital assistance, the program is the primary source of federal funds for routine capital assistance needs, such as bus and rail system replacements, equipment purchases, facilities construction, and system modernization and rehabilitation. For operating assistance, the program is the sole source of federal funds beginning with fiscal year 1984.

[3]Section 8 of the Urban Mass Transportation Act, as amended, establishes a program of planning assistance grants intended to ensure that transit projects are developed in accordance with regional transportation plans.

Number of Accidents, Injuries, and Fatalities Reported by SEPTA (1984-88)

	Number of accidents by mode					
	1984	**1985**	**1986**	**1987**	**1988**	**Total**
Motor bus	2,655	3,119	2,709	2,982	2,945	**14,410**
Rapid rail	276	322	344	406	259	**1,607**
Streetcar	719	715	850	807	828	**3,919**
Trolley bus	127	149	127	144	138	**685**
Commuter rail	624	774	596	476	147	**2,617**
Total	**4,401**	**5,079**	**4,626**	**4,815**	**4,317**	**23,238**

	Number of injuries by mode					
	1984	**1985**	**1986**	**1987**	**1988**	**Total**
Motor bus	1,859	2,339	2,174	2,110	2,535	**11,017**
Rapid rail	404	423	567	531	254	**2,179**
Streetcar	515	432	466	629	803	**2,845**
Trolley bus	97	100	112	74	109	**492**
Commuter rail	573	1,062	584	576	163	**2,958**
Total	**3,448**	**4,356**	**3,903**	**3,920**	**3,864**	**19,491**

	Number of fatalities by mode					
	1984	**1985**	**1986**	**1987**	**1988**	**Total**
Motor bus	9	3	3	7	3	**25**
Rapid rail	11	8	19	15	11	**64**
Streetcar	3	1	0	3	0	**7**
Trolley bus	0	0	0	0	0	**0**
Commuter rail	3	10	8	9	11	**41**
Total	**26**	**22**	**30**	**34**	**25**	**137**

Annual Passenger Miles Reported by SEPTA (1984-88)

Figures in millions

	1984	1985	1986	1987	1988	Total
Motor bus	544	487	459	459	511	**2,460**
Rapid rail	567	444	402	488	445	**2,346**
Streetcar	109	94	98	83	97	**481**
Trolley bus	23	23	21	21	21	**109**
Commuter rail	179	261	333	331	336	**1,440**
Total	**1,422**	**1,309**	**1,313**	**1,382**	**1,410**	**6,836**

Accidents, Injuries, and Fatalities Per-Million-Passenger-Miles Reported by SEPTA (1984-88)

	Accidents per-million-passenger-miles					
	1984	1985	1986	1987	1988	5-year period
Motor bus	4.9	6.4	5.9	6.5	5.8	**5.9**
Rapid rail	0.5	0.7	0.9	0.8	0.6	**0.7**
Streetcar	6.6	7.6	8.7	9.7	8.5	**8.1**
Trolley bus	5.5	6.5	6.0	6.9	6.6	**6.3**
Commuter rail	3.5	3.0	1.8	1.4	0.4	**1.8**
All modes	**3.1**	**3.9**	**3.5**	**3.5**	**3.1**	**3.4**
	Injuries per-million-passenger-miles					
	1984	1985	1986	1987	1988	5-year period
Motor bus	3.4	4.8	4.7	4.6	5.0	**4.5**
Rapid rail	0.7	1.0	1.4	1.1	0.6	**0.9**
Streetcar	4.7	4.6	4.8	7.6	8.3	**5.9**
Trolley bus	4.2	4.4	5.3	3.5	5.2	**4.5**
Commuter rail	3.2	4.1	1.8	1.7	0.5	**2.1**
All modes	**2.4**	**3.3**	**3.0**	**2.8**	**2.7**	**2.9**
	Fatalities per-million-passenger-miles					
	1984	1985	1986	1987	1988	5-year period
Motor bus	0.02	0.01	0.01	0.02	0.01	**0.01**
Rapid rail	0.02	0.02	0.05	0.03	0.02	**0.03**
Streetcar	0.03	0.01	0.00	0.04	0.00	**0.01**
Trolley bus	0.00	0.00	0.00	0.00	0.00	**0.00**
Commuter rail	0.02	0.04	0.02	0.03	0.03	**0.03**
All modes	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**

SEPTA Commuter Rail Accidents Reported to FRA (Fiscal Years 1983-88)

Type of accident	No. of accidents	No. of injuries	Primary cause of accidents			
			Track, roadbed, and structures	Mechanical and electrical failure	Human error	Other factors
Rail-highway crossing	20	9	0	0	0	20
Derailment	14	4	2	0	10	2
Collision[a]	12	382	2	0	10	0
Obstructions[b]	4	13	0	0	1	3
Other	9	14	0	2	5	2
Total	**59**	**422**	**4**	**2**	**26**	**27**

[a]Head-on, rear-end, or side collisions involving trains or locomotives.

[b]Equipment or foreign object on track right-of-way.

Transportation Planning Process for the Philadelphia-New Jersey Urban Area

Before receiving grant assistance, SEPTA is required to participate in a local planning process for the Philadelphia-New Jersey urban area. Each year SEPTA develops a capital budget establishing funding priorities among proposed projects based on a capital needs assessment. Prior to fiscal year 1989, SEPTA had no formal means of assessing the importance of proposed projects, and its capital programming process was based on a general consensus among SEPTA officials of the projects needing funding. For fiscal year 1989, SEPTA implemented a formal process that ranked each proposed project based on 12 factors weighted by a predetermined value of its relative importance. These factors include safety, service quality, current ridership, investment per rider, ridership, operating cost impact, critical nature of project, location of project, previous commitment to project, economic development, traffic congestion relief, and passenger comfort and convenience. Safety is the dominant factor with the highest weight.

SEPTA, along with other UMTA grantees in the area, submits its capital budget to the metropolitan planning organization for the urban area—the Delaware Valley Regional Planning Commission. The Commission provides coordinated planning for the region and develops the urban area's Transportation Improvement Program based on input from the grantees. The Transportation Improvement Program is a 6-year plan of the area's anticipated projects and contains a program of projects, or "annual element" of projects proposed for funding during the upcoming fiscal year, as well as a list of projects scheduled over the next 5 fiscal years. The Commission's Policy Board approves the Transportation Improvement Program and submits each grantee's program of projects to UMTA for review and approval.

UMTA Grant Approval Process

UMTA follows different procedures for reviewing and approving section 3 and section 9 grants. Section 3 funds are awarded at the discretion of the UMTA Administrator although the Congress may also authorize certain section 3 projects. Section 9 grants are approved by the UMTA regional manager.

The UMTA regional offices request that grantees submit section 3 grant applications for each project proposed for funding. The regional offices review the applications to verify that the projects are listed on the grantee's program of projects and to ensure that eligibility requirements are met. Using guidance from UMTA headquarters, the regional offices prepare a demand analyses that ranks (1) rail modernization projects within the urban area by grantee and (2) bus projects within five priority classes on a regionwide basis.

Each regional office sends its project demand analyses to UMTA headquarters where they are aggregated for all regions. From the demand analyses, UMTA headquarters prepares a demand list of proposed projects, which is sent to the UMTA Administrator. The Administrator makes the final section 3 grant award decisions based upon the demand list and other considerations.

The section 9 program apportionments for each urban area are published in the Federal Register. The Philadelphia-New Jersey urban area allocates its local apportionment among the four UMTA grantees based on the same statutory formula factors used to make urban area apportionments. Each grantee can then submit a section 9 grant application to the UMTA regional office.

In 1987, UMTA streamlined the section 9 grant application and review process. Grantees, among other things, can submit a single grant application for a group of projects, rather than a series of applications for individual projects. UMTA approves applications quarterly, and its quarterly release process provides assurances to grantees that a completed application submitted at the beginning of a quarter will be approved by the end of that quarter.

UMTA Region III officials told us that they review SEPTA section 9 grant applications to (1) verify that projects are listed on the program of projects, (2) ensure that total projects' cost will not exceed the section 9 apportionment to SEPTA, and (3) ensure SEPTA's compliance with eligibility requirements. When these requirements are met, the UMTA regional

manager approves SEPTA's grant application and notifies UMTA headquarters of the grant award.

Views of UMTA Officials on GAO Recommendations

We discussed the report's contents with UMTA headquarters officials. The UMTA officials agreed that UMTA has broad safety authority under Section 22 of the Urban Mass Transportation Act of 1964, as amended. However, the officials pointed out that this position has been challenged in court and that UMTA's safety role is not clear. According to the officials, UMTA has traditionally relied on grantees' self-certification that they comply with federal requirements and has encouraged state and local governments to oversee safety conditions of grantees. In only two extreme situations has UMTA been requested to conduct a section 22 safety investigation. The officials said that UMTA is considering legislative proposals to expand section 22 safety investigations and triennial review safety requirements.

The UMTA officials generally agreed with our recommendation to obtain more complete and accurate information on SEPTA accidents and injuries and their causes. Although our review was limited to UMTA's oversight at SEPTA, we recognized that UMTA could either request SEPTA to provide the information periodically or, on a broader level, revise its section 15 reporting requirements to collect the information from all grantees. The officials said that UMTA is currently evaluating the section 15 reporting requirements on a national basis to determine what safety information should be used in taking on a more active safety role.

The UMTA officials also generally agreed with our recommendation to follow-up on the safety problems identified by the section 22 investigation and by other sources during the next triennial review at SEPTA. Although the UMTA regional office monitors SEPTA's progress in implementing the approved section 22 corrective action plan during Quarterly Progress Review meetings with SEPTA, the UMTA officials said that the regional office would be notified to follow-up on all identified safety problems during the next triennial review at SEPTA, currently scheduled in December 1989.

However, the UMTA officials disagreed with our recommendation to maintain documentation of the section 3 grant awards process. According to the officials, the section 3 program provides discretionary not full competition grants, and, therefore, there is no need to maintain detailed documentation supporting section 3 grant funding decisions. We believe that competition in assistance programs should be encouraged, where appropriate. The reason for promoting competition in discretionary programs is to identify and fund the best possible projects, thereby more effectively achieving program objectives. Further, written justification

of award decisions, particularly those that deviate from recommendations made by application reviewers, would promote managerial accountability for award decisions. Finally, federal internal control standards require that all transactions and significant events, such as grant awards, be clearly documented and readily available for examination.

Objectives, Scope, and Methodology

On December 22, 1987, Congressman William H. Gray, III (former Chairman, House Budget Committee) requested GAO to determine whether a review of SEPTA's efficiency and effectiveness was warranted. In March 1989, we issued a report on UMTA's oversight of SEPTA's compliance with procurement requirements—the first of two reports in response to the Chairman's request. In subsequent discussions with the Chairman's office, we agreed to (1) identify any trends in SEPTA's safety condition, (2) review UMTA's role in monitoring the safety of SEPTA's transit system, and (3) determine the factors UMTA considers in approving grant assistance to SEPTA.

To accomplish our objectives, we examined pertinent mass transit legislation and UMTA's implementing regulations and directives. We examined UMTA's 1987 triennial review report on SEPTA and recent independent annual audits on SEPTA. We also reviewed the Secretary of Transportation's 1986, 1987, and 1988 annual statements and reports required by the Federal Managers Financial Integrity Act of 1982. The reports did not identify any material weaknesses related to UMTA's internal controls for compliance monitoring. Additionally, we reviewed state agencies' reports on SEPTA to determine whether any relevant weaknesses in SEPTA's policies or management had been identified. We also examined our prior reports on SEPTA.

We interviewed UMTA and SEPTA officials concerning UMTA's role in safety and its safety-related activities, the safety of the SEPTA system, and SEPTA's efforts to improve safety. We obtained relevant reports and safety statistics at each location. However, we did not attempt to verify the accuracy of either UMTA's or SEPTA's statistics.

To determine how UMTA considers SEPTA's funding priorities during the grant review and approval process, we studied UMTA's grant approval process for both sections 3 and 9 grants. We discussed this process with officials at UMTA headquarters and Region III, as well as at SEPTA and the Delaware Valley Regional Planning Commission, the local metropolitan planning organization. We documented SEPTA's capital budgeting process and discussed SEPTA's financial needs with SEPTA officials. We then examined files and reports on one section 3 grant and one section 9 grant at both UMTA Region III and SEPTA to test if SEPTA was using federal funds appropriately on these two grants. We also examined data from SEPTA's management information system on selected projects and reviewed excerpts from SEPTA's quarterly project reports and minutes from its Quarterly Project Review meetings.

Our work was performed from November 1988 through October 1989 in accordance with generally accepted government auditing standards. However, the scope of our work did not include validating SEPTA's management information system or UMTA's or SEPTA's safety statistic data bases.

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