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MASS TRANSIT

Many Management Successes at WMATA, but Capital Planning Could Be Enhanced

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Abbreviations

APTA	American Public Transportation Association
ATC	Automatic Train Control
CIP	Capital Improvement Program
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
IRP	Infrastructure Renewal Program
NTSB	National Transportation Safety Board
SAP	System Access and Capacity Program
SEP	System Expansion Program
TEA-21	Transportation Equity Act for the 21st Century
TOC	Tri-State Oversight Committee
TIIF	Transit Infrastructure Investment Fund
TPB	Transportation Planning Board of the Metropolitan Washington Council of Governments
WMATA	Washington Metropolitan Area Transit Authority

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United States General Accounting Office
Washington, DC 20548

July 2, 2001

The Honorable Constance A. Morella
Chairman
The Honorable Eleanor Holmes Norton
Ranking Minority Member
Subcommittee on the District of Columbia
Committee on Government Reform
House of Representatives

The Honorable Thomas M. Davis
House of Representatives

In recent years, the Washington Metropolitan Area Transit Authority's (WMATA) public transit system has experienced problems related to the safety and reliability of its transit services, including equipment breakdowns, delays in scheduled service, unprecedented crowding on trains, and some accidents and tunnel fires. At the same time, WMATA's ridership is at an all-time high and WMATA managers expect the number of passengers to double over the next 25 years. As agreed with your offices, this report addresses the following questions: (1) What challenges does WMATA face in operating and maintaining its Metrorail system? (2) What efforts has WMATA made to establish and monitor safety and security within its transit system? (3) To what extent does WMATA follow established best practices in planning, selecting, and budgeting for its capital investments?

In addressing the first two questions on operations and maintenance and safety and security, we performed a broad review of a myriad of issues facing WMATA by interviewing knowledgeable officials throughout WMATA and other organizations that affect the agency and by reviewing pertinent documentation. In addressing the third question on capital investment, we compared WMATA's practices with those of leading public and private organizations that GAO studied in 1998,[1] assessing the extent to which WMATA (1) integrates its organizational goals into the capital decision-making process through structured strategic planning and needs determination processes, (2) uses an investment approach to evaluate and

[1] *Executive Guide: Leading Practices in Capital Decision-Making* (GAO/AIMD-99-32, Dec. 1998).

select capital assets, and (3) maintains budgetary control over its capital investments. (See app. IV for more detailed information about our scope and methodology). This letter summarizes our findings; more detailed responses to each of these questions are presented in appendixes I through III.

Results in Brief

In operating its Metrorail system, WMATA is addressing significant challenges brought about by the agency's aging equipment and infrastructure and its ever-increasing ridership. WMATA is also examining ways to ease crowding on the system's rail cars and determining whether and how to expand Metrorail's maintenance and repair shop capacity as WMATA acquires nearly 200 new rail cars to help meet increasing ridership demands. After we completed our audit work WMATA suffered a setback in late June 2001, when it took steps to delay the delivery of the new rail cars. WMATA had hoped to begin deploying some of these cars in the summer of 2001, but technical problems have delayed WMATA's acceptance of the cars from the contractor. Nevertheless, WMATA has undertaken actions to address each of these challenges, including establishing a comprehensive program for infrastructure renewal, purchasing additional rail cars to ease overcrowding on its trains, and assessing future needs for expanded repair shop capacity. WMATA has also established programs to identify, evaluate, and minimize safety and security risks throughout its rail and bus systems. WMATA's safety program has evolved since the mid-1990s, when a series of accidents and incidents led to several independent reviews citing the need for program improvements. Since then, WMATA has updated its safety and security plans and upgraded its internal safety organization. Despite a recent rise in the number of rail and bus safety incidents, WMATA has experienced low rates of injury and serious crimes over the years. WMATA monitors safety and crime statistics and has a number of ongoing targeted efforts to reduce safety incidents and deter specific types of crime on its transit systems.

WMATA has adopted several of the best capital practices used by leading public and private sector organizations, but it could benefit by establishing a more formal, disciplined framework for its capital decision-making process. We note that although WMATA has articulated a goal of doubling ridership by the year 2025, it has not fully developed a strategic planning process that defines long-term, multiyear goals and objectives and clearly links its capital projects to achieving them. We also note that WMATA has incorporated some elements of an investment approach—that is, one that builds upon an assessment of where an agency should invest its resources

for the greatest long-term benefit—when evaluating and selecting its capital improvement projects. However, it does not have a formal review and approval framework for periodically reviewing, prioritizing, and deciding on capital investments; and it has not developed a long-term capital plan that defines its capital decisions. Finally, we point out that WMATA has used a wide variety of innovative financing techniques for capital projects, but it has not developed plans that describe how it would address large anticipated shortfalls in its capital programs.

WMATA's decisions are subject to final approval by representatives from numerous state and local jurisdictions served by WMATA and other external stakeholders in the Washington metropolitan region. Also, unlike most other major urban transit systems, WMATA does not have a dedicated revenue source to fund its capital programs, thus subjecting the agency to the appropriations processes of the federal, state, and local governments that fund its programs. Despite this challenging environment, we believe that WMATA would benefit from an improved capital decision-making framework that is more in line with best practices. Such a framework would provide Congress, the state and local jurisdictions served by WMATA, and the public with greater assurance that WMATA's internal decisions are fully planned, reviewed, and supported by sound analyses. Accordingly, our report contains several recommendations designed to strengthen WMATA's strategic and capital planning processes.

We provided the Department of Transportation and WMATA with draft copies of this report for their review and comment. The Department of Transportation had no comments on the report. WMATA concurred with all of our major recommendations aimed at improving the agency's strategic planning and capital investment practices and indicated that it has already taken steps to begin implementing some of our recommendations. WMATA did not agree with the subpart of our second recommendation that calls for developing alternative capital funding strategies and project outcomes, depending on the availability of funding from federal, state, and local sources. WMATA's comments and our response are located in appendix V.

Background

WMATA was created in 1967 by an interstate compact that resulted from the enactment of identical legislation by Virginia, Maryland, and the District of Columbia, with the concurrence of the U.S. Congress.[2] Since

[2]Washington Metropolitan Area Transit Authority Compact, Public Law No. 89-774 (1966).

then, WMATA has been responsible for planning, financing, constructing, and operating a comprehensive mass transit system for the Washington metropolitan area. WMATA began building its Metrorail system in 1969, acquired four regional bus systems in 1973, and began operating the first phase of Metrorail operations in 1976. In January 2001, WMATA completed the originally planned 103-mile Metrorail system that now includes 83 rail stations on 5 rail lines.[3]

WMATA operates in a complex environment, with many organizations influencing its decision-making and funding and providing oversight. WMATA is governed by a Board of Directors, which sets policies and oversees all of WMATA's activities, including budgeting, operations, development and expansion, safety, procurement, and other activities. In addition, a number of local, regional, and federal external organizations affect WMATA's decision-making, including: (1) state and local governments, which subject WMATA to a range of laws and requirements; (2) the Tri-State Oversight Committee, which oversees WMATA's safety activities and conducts safety reviews; (3) the National Capital Region Transportation Planning Board (TPB) of the Metropolitan Washington Council of Governments, which develops the short- and long-range plans that guide WMATA's capital investments; (4) the Federal Transit Administration (FTA), which provides oversight of WMATA in many areas; and (5) the National Transportation Safety Board, which investigates accidents on transit systems as well as other transportation modes.

WMATA estimates that its combined rail and bus ridership will total 324.8 million passenger trips in fiscal year 2001, making it the second largest heavy rail rapid transit system and the sixth largest bus system in the United States, according to WMATA officials. WMATA's proposed fiscal year 2002 budget totals nearly $1.9 billion. Of the total amount, about 56 percent, or $1.06 billion, is for capital improvements; 42 percent, or $796.6 million, is for operations and maintenance activities; and the remaining 2 percent, or $37 million, is for debt service and other projects.

WMATA's funding comes from a variety of federal, state, and local sources. Unlike most other major urban transit systems, WMATA does not have dedicated sources of revenues, such as local sales tax revenues, that are automatically directed to the transit authority. WMATA receives grants from the federal government and annual contributions by each of the local

[3]WMATA operates five rail lines: red, blue, orange, green, and yellow.

jurisdictions that WMATA serves, including the District of Columbia and the respective local jurisdictions in Maryland and Virginia. For example, in its fiscal year 2002 proposed operating budget totaling $796.6 million (for rail, bus, and paratransit[4] services), WMATA projects that approximately 55 percent of its revenues will come from passenger fares and other internally generated revenues, and 45 percent will come from the local jurisdictions served by WMATA. With regard to its capital program for infrastructure renewal, WMATA projects that about 47 percent of its proposed 2002 budget will come from federal government grants, 38 percent from federally guaranteed financing, and 15 percent from the local jurisdictions and other sources. WMATA has also received funding directly through the congressional appropriations process over the past 30 years—totaling about $6.9 billion—for construction of the originally planned subway system. WMATA did not have to compete against other transit agencies for this funding, which ended in fiscal year 1999.

Metrorail's expenses and revenues represent the largest portion of WMATA's operating budget. For example, in fiscal year 2000—the latest year for which final actual figures are available—Metrorail's operating expenses accounted for 56 percent, or $392.1 million, of WMATA's overall operating costs of $704.8 million. At the same time, Metrorail's passenger fares and other revenues accounted for about 76 percent, or $292.5 million, of WMATA's overall internally generated revenues of $384.9 million. As a measure of financial performance, Metrorail's cost recovery ratio (revenues divided by expenses) represents one of the highest of any rail transit system in the nation, according to FTA. For example, during fiscal years 1996 through 2000, Metrorail recovered, on average, 73 cents for every dollar that WMATA spent to operate and maintain the rail system.

With regard to capital investment issues, GAO issued a report in December 1998[5] that identified capital decision-making principles and practices used by outstanding state and local governments and private sector organizations. In order to evaluate the extent to which WMATA followed best practices in planning, selecting, and budgeting for its capital investments, we compared WMATA's practices with those of leading

[4]WMATA coordinates a regional paratransit system called "MetroAccess" that provides public transit services to individuals with disabilities who either reside in or are visiting the WMATA service area.

[5]GAO/AIMD-99-32, Dec. 1998.

public and private organizations that we studied in 1998. Accordingly, in this report, we assess the extent to which WMATA (1) integrates its organizational goals into the capital decision-making process through structured strategic planning and needs determination processes, (2) uses an investment approach to evaluate and select capital assets, and (3) maintains budgetary control over its capital investments.

WMATA Is Addressing Significant Metrorail Operations and Maintenance Challenges

One of the key operating challenges facing Metrorail has been the increasing problems caused by the advancing age of its existing infrastructure. Metrorail has experienced vehicle, escalator, elevator, and other system equipment and infrastructure problems over the past several years. These problems have resulted in, among other things, an increasing number of train delays. For example, the number of train delays due to system problems increased from 865 in fiscal year 1996 to 1,417 in fiscal year 2000, or by about 64 percent.[6] WMATA attributes these problems primarily to its aging rail equipment and infrastructure. Forty-five percent of Metrorail's 103-mile system is from 17 to 25 years old, and another 33 percent is from 9 to 16 years old. Similarly, 39 percent of Metrorail's 762-car fleet has been operating since 1976; another 48 percent went into service during the 1980s. WMATA has estimated that the expected useful life of a rail car is 40 years if a major renovation is performed at the mid-point of the car's life cycle.

WMATA is addressing Metrorail's equipment and infrastructure problems through a number of projects in its capital-funded Infrastructure Renewal Program (IRP), described in detail later in this letter. One key IRP project—the Emergency Rail Rehabilitation Program—is focused on improving Metrorail's service reliability problems. Through this program, now in its second year, WMATA has made significant progress in implementing many rail system improvement projects. For example, by August 2000, WMATA had completed almost all of the program's accelerated car maintenance projects on such critical components as brakes and doors on over 600 rail cars. In addition, WMATA's statistics show that for the period covering July 2000 through January 2001, the number of passenger offloads had decreased by 15 percent, compared with the same period in the previous year. In particular, WMATA officials noted that offloads during the spring "Cherry Blossom Season" in the

[6]According to WMATA officials, non-equipment-related train delays accounted for about 14 percent of the delays in fiscal year 1996 and 18 percent in fiscal year 2000. Such delays increased by 108 percent, from 121 in fiscal year 1996 to 252 in fiscal year 2000. They attributed these delays to an increase in ridership and rail fleet miles.

metropolitan Washington, D.C., area, decreased, on average, from 9 per weekday in 1999 to 4.8 per weekday in 2001. Furthermore, by June 2000, work was under way to maintain and rehabilitate 170 station escalators. IRP includes other key projects, such as the rail car rehabilitation project, which will enhance the reliability of 364 cars that were built in the 1980s. These cars will be overhauled and rehabilitated under a 5-year contract awarded in December 2000. WMATA expects to take delivery of the first rehabilitated cars in August 2002.

Metrorail also faces another significant operating challenge brought about by ever-increasing ridership. Metrorail is now operating at near capacity during peak demand periods, causing some uncomfortably crowded trains. WMATA's recent studies on crowding found that demand has reached and, in some cases, exceeded scheduled capacity—an average of 140 passengers per car—during the peak morning and afternoon hours. For example, of the more than 200 peak morning trips that WMATA observed over a recent 6-month period, on average, 15 percent were considered "uncomfortably crowded" (125 to 149 passengers per car), and 8 percent had "crush loads" (150 or more passengers per car). Metrorail's overcrowded conditions are primarily the result of the substantial growth in ridership it has experienced over the last several years, an insufficient number of rail cars to operate more and longer trains on a regular basis, and system and other constraints on expanding rush-hour trains from six cars to eight cars—the maximum size that station platforms can accommodate.

WMATA has several actions under way to ease Metrorail's overcrowded conditions. Most notably, the agency ordered 192 new rail cars that it had expected to begin deploying in the summer of 2001. We note, however, that WMATA suffered a setback in June 2001 when it took action to delay delivery of these cars until the rail car contractor corrects technical problems. As of late June 2001, WMATA officials told us that they expect to begin phasing the first new cars into service by the fall of 2001. Over the next year or so, WMATA plans to deploy the majority of these cars where and when the heaviest ridership is occurring, allowing for adjustments to train sizes. For example, on some lines, the train size will change from four cars to six cars. WMATA is also examining Metrorail's core capacity needs to determine, among other things, what improvements in capacity—cars and power, for example—will be required to operate eight-car trains on a

regular basis during peak demand periods.[7] WMATA expects to complete this study in the fall of 2001.

Finally, Metrorail's maintenance and repair shop capacity could be challenged as early as the fall of 2001 with the delivery of the first group of new rail cars. Depending on the number of cars that can be repaired outside of the shops, WMATA could need up to 126 repair shop spaces, or 12 more than the 114 spaces that would be available for scheduled maintenance and unscheduled repairs at that time. Furthermore, Metrorail's repair shop capacity may be exhausted and could become even more of a problem after the fall of 2002, when delivery of the remaining new cars is expected to be completed. In addition, WMATA plans to acquire a total of at least 94 additional rail cars to accommodate new revenue service on the Largo extension to the Blue Line in Maryland (which is currently under construction); increased demand on the Orange Line in Virginia due to service expansion; and service growth on other existing rail lines, thus adding to the maintenance and repair shop capacity problem.

Although WMATA officials believe that the agency's current shop capacity may not be favorable for the expeditious turnaround of vehicles requiring maintenance and repair, they pointed out that they are taking steps to ease the capacity problem. For example, in the near term, WMATA has four "blow down pits"—spaces in its largest shops used to clean the underside of a car prior to its scheduled maintenance—that can also be used for maintenance and repair. In addition, WMATA plans to open a new facility in 2002 that will expand its current shop capacity to accommodate 126 rail cars. At the same time, however, WMATA recognizes that it currently does not have the capacity to maintain and repair the additional cars for the Largo extension. WMATA is taking two actions to address this problem. First, WMATA is surveying its existing shops to determine whether their capacity can be expanded. The agency expects to complete the survey in the fall of 2001, possibly beginning expansion efforts as early as 2002. Second, WMATA plans to build a new repair shop in the Dulles Corridor.

[7]The overall goal of the core capacity study is to determine what improvements or modifications will be required to Metrorail's "core" capacity (stations, platforms, rail line capacity, etc.) to accommodate WMATA's goal of doubling ridership by the year 2025. Metrorail's "core" consists of 29 stations located in downtown Washington, D.C., and some of its immediate suburbs.

However, this facility would not be available until about 2010, when construction of the Dulles Corridor extension is to be completed.

WMATA Has Established Safety and Security Programs

WMATA has established programs to address safety and security risks that affect its rail and bus systems. WMATA's safety program has evolved since the mid-1990s, when a series of rail accidents and incidents led to several independent reviews that cited the need for program improvements. For example, in 1997, FTA reported the results of a safety review it performed of WMATA's rail activities in response to several serious accidents and incidents that occurred in 1996. The review concluded that WMATA had not adequately maintained a planned approach to safety program tasks or dedicated appropriate financial and personnel resources to accomplish these tasks. In addition, FTA found that WMATA's safety efforts had been weakened by frequent changes in the organizational reporting level of its safety department and a deemphasis of safety awareness in public and corporate communications. The review also found that WMATA's safety department had been moved from place to place in the organization, making its work difficult, its priorities uncertain, and its status marginal.

Under a newly formed state safety oversight program, the leadership of a new General Manager, and a new bus transit safety program, WMATA has responded to these criticisms by upgrading and enhancing its safety activities. For example, the current General Manager made safety a priority by reviewing the transit authority's safety function and revising its system safety program plan, which contains detailed protocols for identifying and assessing hazards. WMATA's safety plan also includes requirements for identifying, evaluating, and minimizing safety risks throughout all elements of the WMATA rail and bus systems. The plan also identifies management and technical safety and fire protection activities to be performed during all phases of bus and rail operations. In addition, WMATA's current General Manager delegated specific safety responsibilities to the transit agency's Chief Safety Officer who reports directly to the General Manager and is now responsible for (1) managing system safety, occupational safety and health, accident and incident investigation, and fire protection; (2) overseeing construction safety and environmental protection; and (3) monitoring the system safety program plan. By elevating its internal safety organization and increasing its emphasis on safety activities, WMATA has given safety a higher degree of attention and priority.

More recently, following a serious tunnel fire in 2000, WMATA created a safety task force to review its operations control center's handling of the

incident. In addition, WMATA's General Manager asked the American Public Transportation Association (APTA) to conduct a comprehensive peer review of the transit agency's emergency procedures for handling tunnel fires. APTA's findings and recommendations, in several ways, confirmed the findings identified in WMATA's internal investigation. For instance, both investigations supported the need for efforts to formalize and strengthen training for operations control center personnel and ensure that emergency procedures are addressed in the training and certification of operations staff. The two reviews made 32 recommendations concerning, among other things, communications policy and training. At the time of our review, WMATA had taken actions to implement 30 of the 32 recommendations, including providing training to its staff on communicating more effectively with fire authorities and opening a fire training center for WMATA employees and local firefighters. WMATA is in the process of addressing the other two recommendations.

Despite a recent rise in the number of rail and bus safety incidents, which WMATA attributes to the large increase in rail and bus ridership and the recent hiring of many new bus drivers, APTA and FTA now believe that WMATA has a "very good" safety program as evidenced by the low injury rates on both its rail and bus systems. For example, WMATA has experienced low injury rates in its rail stations over the last 5 years—on average, only .37 injuries per 1 million passenger miles. Very few of these injuries were serious or fatal. However, the absolute number of rail station injuries increased from 366 in fiscal year 1999 to 474 in fiscal year 2000, and the rail station injury rate increased from 0.34 to 0.43 for the same 2 years. WMATA documents also show that about 50 percent of all rail injuries occurred on escalators. According to WMATA's Chief Safety Officer, the root cause of the majority of these incidents is mainly human factors, not equipment failure, employee performance, or unsafe conditions. In fiscal years 1999 and 2000, for example, WMATA's records show that no escalator incidents were caused by electrical or mechanical failure or unsafe conditions. WMATA is promoting escalator safety by conducting public awareness campaigns and adding safety devices.

Similar to his initiatives affecting WMATA's safety program and plan, WMATA's General Manager has delegated authority to WMATA's Chief of Police to plan, direct, coordinate, implement, and evaluate all police and security activities for the transit agency. WMATA's Chief of Police heads the Metro Transit Police Department, which has an authorized strength of 320 sworn and 103 civilian personnel. The Department has jurisdiction and arrest powers on WMATA property throughout the 1,500 square mile transit zone that includes Maryland, Virginia, and the District of Columbia.

WMATA's Metro Transit Police Department addresses security through its system security program plan, participates in external security reviews, and collects and evaluates crime statistics. To emphasize the importance of system security, the Department established a set of comprehensive security activities in its system security program plan. The plan is designed to maximize the level of security experienced by passengers, employees, and other individuals who come into contact with the transit system; to minimize the cost associated with the intrusion of vandals and others into the system; and to make the transit system more proactive in preventing and mitigating security problems.

WMATA has also participated in FTA's voluntary transit security audit program, and FTA officials have concluded that WMATA's overall security program demonstrates a high level of attention to passenger and employee security. WMATA statistics indicate that serious crimes such as homicide and rape occur rarely on the transit system. During the period from 1996 through 2000, no rapes occurred, and there were two murders in the system. Most of the crimes committed in the transit system are far less serious, such as disorderly conduct and trespassing. More of the crimes are committed in the system's parking lots than on the rail and bus system, and more crimes are committed on the rail system than on the buses. Some crimes, such as motor vehicle theft and robbery, increased somewhat from 1999 to 2000. To address those increases and the problem of crime in its parking lots, WMATA has increased undercover patrols of parking lots and rail stations.

WMATA Is Addressing its Major Capital Requirements but Could Benefit From a More Formal Capital Planning Process

WMATA operates in a complex environment that makes capital decision-making difficult. For example, unlike most other major urban transit systems, WMATA does not have a dedicated revenue source to fund its capital programs, thus subjecting the agency to the appropriations processes of the federal, state, and local governments that fund its programs. In addition, WMATA's General Manager and staff must achieve consensus and obtain final approvals for the agency's capital projects from many organizations and government levels, including its own Board of Directors; numerous local and state jurisdictions within the District of Columbia, Maryland, and Virginia that the transit agency serves; the TPB of the Metropolitan Washington Council of Governments; the Federal Transit Administration; and the U.S. Congress, which has provided WMATA with funding over the years to build its Metrorail system. In spite of these challenges, WMATA has incorporated some of the best capital investment practices followed by leading public and private sector organizations. We believe that WMATA could benefit by building on those

practices by formalizing some aspects of its capital decision-making process and expanding its strategic and capital planning efforts.

WMATA created a Capital Improvement Program in November 2000 to consolidate its ongoing and planned capital improvement activities. This program has three elements to address all aspects of the agency's capital investments, including (1) an Infrastructure Renewal Program (IRP) for system rehabilitation and replacements, (2) a System Expansion Program (SEP), and (3) a System Access and Capacity Program (SAP). First, IRP is designed to rehabilitate or replace WMATA's existing assets, including rail cars, buses, maintenance facilities, tracks, and other structures and systems. IRP is estimated to cost $9.8 billion over the next 25 years. Secondly, SEP is designed to expand fixed guideway services,[8] selectively add stations and entrances to the existing Metrorail system, and improve bus service levels and expand service areas. WMATA has not yet estimated the total costs associated with its planned SEP projects. Third, SAP—which is estimated to cost about $2.5 billion over the next 25 years—was established to improve access to and the capacity of the transit system by providing additional rail cars and buses, parking facilities, and support activities to accommodate ridership growth. It also includes the study to determine the modifications needed to Metrorail's core capacity to sustain current and future ridership volumes. WMATA expects to complete this study in the fall of 2001.

In our December 1998 report,[9] GAO identified capital decision-making principles and practices used by outstanding state and local governments and private sector organizations. In order to evaluate the extent to which WMATA followed best practices in planning, selecting, and budgeting for its capital investments, we compared WMATA's practices with those of the leading public and private organizations that we studied in 1998. Accordingly, in this report, we assess the extent to which WMATA (1) integrates its organizational goals into the capital decision-making process through structured strategic planning and needs determination processes, (2) uses an investment approach to evaluate and select capital assets, and (3) maintains budgetary control over its capital investments. Table 1 describes the best practices that were applied within each of these

[8]Fixed guideway services use and occupy a separate right-of-way for the exclusive use of public transportation services. They include fixed rail, exclusive lanes for buses and other high-occupancy vehicles, and other services.

[9]GAO/AIMD-99-32, Dec. 1998.

three areas, which the 1998 GAO report categorized as "principles" used by leading organizations to make capital investment decisions.

Table 1: Principles and Practices for Planning, Selecting, and Budgeting for Capital Investments

Principles	Practices
Integrate organizational goals into the capital decision-making process.	Conduct comprehensive assessment of needs to meet results-oriented goals and objectives. Identify current capabilities, including the use of an inventory of assets and their condition, and determine if there is a gap between current and needed capabilities. Decide how best to meet the gap by identifying and evaluating alternative approaches (including noncapital approaches).
Evaluate and select capital assets using an investment approach.	Establish review and approval framework supported by analyses. Rank and select projects on the basis of established criteria. Develop a long-term capital plan that defines capital asset decisions.
Maintain budgetary control over capital investments.	Budget for projects in useful segments. Consider innovative approaches to full up-front funding.

Source: *Executive Guide: Leading Practices in Capital Decision-Making* (GAO/AIMD-99-32, December 1998).

Strategic Planning and Needs Determination Processes

In our December 1998 report, we found that leading organizations begin their capital decision-making process by defining their overall mission in comprehensive terms and multiyear goals and objectives. This enables managers to identify the resources needed to satisfy the organization's program requirements on the basis of the program's goals and objectives. To do this, an organization must have identified its mission and goals through a strategic planning process. To assist with identifying any gap between an organization's resource needs and its existing capital capabilities, leading organizations maintain systems that capture and report information on existing assets and facilities. This information is frequently updated and accessible to decisionmakers when needed. Leading organizations also consider a full range of possible ways to

achieve the organization's goals and objectives, including examining both capital and noncapital alternatives.

WMATA has articulated an overall organizational mission statement and a goal of doubling ridership by the year 2025 and is beginning to develop a business planning process. It has not, however, fully developed a strategic planning process that defines multiyear goals and objectives and clearly links its project outcomes—including capital projects—to achieving those goals and objectives. In particular, WMATA has not developed a formal strategic plan that defines multiyear goals and objectives for the agency, nor does it have annual performance plans that explain the specific ways in which WMATA will attempt to achieve those goals and objectives.

WMATA has completed a comprehensive assessment of its infrastructure renewal requirements, and it is in the process of assessing its system capacity requirements. With regard to its System Expansion Program, however, it has not conducted a comprehensive needs assessment, although it does consider regional transportation needs, costs, and benefits before deciding to support proposed expansion projects. For example, WMATA has established a "Project Development Program" to develop conceptual designs, "order of magnitude" cost estimates, and other information on some of the proposed projects contained in the expansion program.

WMATA plays a limited role in analyzing and evaluating alternatives for meeting its system expansion needs. This limited role stems from its relationships with (1) TPB, which plays a key role in developing, coordinating, and approving plans for all regional transportation needs and alternatives including transit, highways, and other transportation modes; and (2) the state and local jurisdictions served by WMATA, which have the lead role in identifying and evaluating transit expansion alternatives within a specific "corridor" or subarea of the Washington metropolitan area.

Investment Approach to Evaluating and Selecting Capital Assets

After leading organizations identify their strategic goals and objectives and assess alternative ways of meeting their capital needs, they go through a process of evaluating and selecting capital assets using an investment approach. An investment approach builds on an organization's assessment of where it should invest its resources for the greatest benefit over the long term. Establishing a decision-making framework that encourages the appropriate levels of management review and approval is a critical factor in making sound capital investment decisions. These decisions are

supported by the proper financial, technical, and risk analyses. Leading organizations not only establish a framework for reviewing and approving capital decisions, they also have defined processes for ranking and selecting projects. Furthermore, they also develop long-term capital plans that are based on the long-range vision for the organization embodied in its strategic plan.

WMATA has incorporated several elements of an investment approach to evaluating and selecting capital improvement projects, but the agency could benefit from a more formal, disciplined decision-making framework. With regard to its program for infrastructure renewal, WMATA officials told us that all appropriate managers were involved in deciding which projects should be selected after a comprehensive needs assessment was performed in March 1999. WMATA also performed a one-time ranking of those projects on the basis of preestablished criteria, including asset function, condition, and other factors. However, WMATA has not established a formal executive-level review group within the agency for making decisions on capital projects, nor does it have formal procedures or a standard decision package for considering the relative merits of its capital projects each year. Also, WMATA officials told us that they play a relatively small role in proposing, evaluating, and selecting system expansion projects. They said that the decisions on such projects are generally driven by the state and local jurisdictions sponsoring the projects. WMATA has contacted state and local transportation executives from Maryland, Virginia, and the District of Columbia to explore ways to increase WMATA's involvement in conducting alternatives analyses for system expansion projects, thereby increasing its influence on those decisions.

Furthermore, although WMATA has performed a comprehensive assessment of infrastructure renewal requirements and has taken a first step in outlining system expansion needs, it has not developed a comprehensive long-term capital plan that defines and justifies its internal capital asset decisions for all of the capital projects falling within WMATA's Capital Improvement Program. Such a plan would allow WMATA to define its strategy and justification for selecting each capital project and would provide baseline information on each project's life-cycle costs and schedules, performance requirements, benefits, and risks. A more formal long-term capital planning process allows an organization to establish priorities and assist with developing current and future budgets. A well-thought-out review and approval framework can also mean that capital investment decisions are made more efficiently and are supported by better information. Furthermore, were WMATA to develop a more

disciplined decision-making framework—with documented support for the alternatives that WMATA favors—the agency would potentially have more influence with the federal government and state and local jurisdictions that ultimately decide whether to provide funding for projects.

Budgetary Control Over Capital Investments

Finally, officials at leading organizations that GAO studied agreed that good budgeting requires that the full life-cycle costs of a project be considered when an organization is making decisions to provide resources. This practice permits decisionmakers to compare the long-term costs of spending alternatives and to better understand the budgetary and programmatic impact of decisions. Most of those organizations make a commitment to the full cost of a project up front and have developed alternative methods for maintaining budgetary control while allowing flexibility in funding. One strategy they use is to budget for and provide advance funding sufficient to complete a useful segment of a project. A useful segment is defined as a component that (1) provides information that allows an agency to fully plan a capital project before proceeding to full acquisition or (2) results in a useful asset for which the benefits exceed the costs even if no further funding is appropriated. Another strategy used by some leading organizations is to use innovative financing techniques that provide new sources of funding or new methods of financial return.

WMATA uses many of the funding strategies followed by leading organizations. For example, to comply with requirements imposed by FTA and its predecessor agencies, WMATA completed its Metrorail system by negotiating for funding in useful or "operable" segments. Furthermore, the agency has used a wide variety of innovative capital financing techniques to fund its Capital Improvement Program (CIP) and operations activities and to leverage its capital assets to generate additional income. However, WMATA faces a number of uncertainties in obtaining the funding it believes it needs to meet its capital requirements, and the agency has not developed plans that describe how it would address large anticipated funding shortfalls in its programs for infrastructure renewal and system capacity. For example, WMATA has not developed alternate scenarios of how such funding shortfalls would be absorbed by the various asset categories under the Infrastructure Renewal Program or by the projects identified under the System Access and Capacity Program. The funding shortfalls are anticipated to total $3.7 billion over the next 25 years and represent an average annual shortfall of about $150 million for both programs. Furthermore, the budget shortfall could significantly increase

when WMATA completes its ongoing assessment of Metrorail's core capacity in the fall of 2001.

Conclusions

Our review showed that WMATA has identified the operational and safety challenges it faces and has established sound policies, programs, and practices to meet those challenges. We note that in the operations and maintenance area, WMATA is in some ways a "victim" of its own success in that its challenges have largely resulted from ever-increasing passenger ridership demands, along with the inevitable aging of its equipment and infrastructure. In the safety and security area, WMATA has established programs to identify, evaluate, and minimize risks throughout its bus and rail systems; and it has upgraded its safety organization in recent years to improve its internal management and oversight of safety problems. WMATA has low incident rates of injury and serious crime on both its rail and bus systems. As a result, WMATA is viewed by outside organizations, such as FTA and APTA, as having very good safety and security programs.

To address its long-term capital needs, WMATA has established a Capital Improvement Program that incorporates some of the best capital investment practices followed by leading public and private sector organizations. However, we believe that WMATA could benefit by building on those practices by formalizing some aspects of its capital decision-making process and by expanding its strategic and capital planning efforts. For example, by developing a multiyear strategic plan and annual performance plans, WMATA could more clearly define its vision, direction, strategies, and priorities—not only for capital planning and decision-making, but for all aspects of its activities. Also, WMATA could benefit from establishing a consolidated capital plan that would allow the agency and its external stakeholders to weigh and balance the need to maintain its existing capital assets against the demand for new assets. A more active role for WMATA in capital planning would provide better information for federal, state, and local decisionmakers that fund WMATA's projects and would increase WMATA's influence with them.

Similarly, a more formal internal review and approval process for making capital decisions within WMATA—including formal procedures and standard decision packages for considering the relative merits of various capital projects each year—would help WMATA establish priorities, develop budgets, and facilitate periodic reviews of all ongoing and proposed projects. It would also provide greater assurance of continuity within the organization if key managers move to other positions or leave the agency. In addition, WMATA could provide valuable analysis and insights through a more active role in identifying and evaluating

alternatives for system expansion projects. Leading organizations consider such alternatives analysis to be a critical factor in making sound capital investment decisions. Because the state and local jurisdictions take the lead in identifying and deciding on expansion projects, WMATA often does not become involved in crucial early decisions about the most appropriate and efficient ways to expand the system. WMATA is exploring ways to increase its involvement in conducting alternatives analyses for system expansion projects, thereby increasing its influence on those decisions. We support WMATA's efforts in this area.

Finally, WMATA has not fully planned how it will address large anticipated funding shortfalls in its programs for infrastructure renewal and system access and capacity. WMATA officials expressed concerns that developing such plans could undermine their efforts to obtain what they believe is the required funding amount for the two capital programs. In our view, however, prudent management requires that the agency identify the steps needed to address any anticipated shortfalls and develop alternate plans for carrying out its capital activities, depending on the level of funding obtained from federal, state, and local sources.

Recommendations for Executive Action

To improve the agency's strategic planning and capital investment practices, we recommend that WMATA's General Manager and Board of Directors take the following actions:

- Develop a long-term strategic plan and annual performance plans that clearly define the agency's multiyear goals and objectives and its specific plans for achieving those goals and objectives.

- Develop a long-term capital plan that covers all three programs of its newly formed consolidated Capital Improvement Program (Infrastructure Renewal Program, System Expansion Program, and System Access and Capacity Program). This plan should:
  - document WMATA's capital decision-making strategy and link it to the agency's overall goals and objectives;
  - define each project's justification and its baseline lifecycle costs, schedule, performance requirements, benefits, and risks;
  - include alternate funding strategies and project outcomes, depending on the availability of funding from federal, state, and local sources; and
  - be updated annually or biennially.

- Formalize WMATA's capital decision-making process for the consolidated Capital Improvement Program by establishing and documenting an

internal review and approval framework and standard procedures and decision packages for analyzing and deciding on projects.

- Develop a process and procedures—in consultation with the TPB and the state and local jurisdictions served by WMATA—for taking a more active role in (1) identifying, analyzing, and evaluating alternatives for expanding WMATA's transit system; and (2) proposing the most efficient and cost-effective projects for expanding the system.

Agency Comments and Our Evaluation

We provided the Department of Transportation and WMATA with draft copies of this report for their review and comment. The Department of Transportation had no comments on the report. WMATA concurred with all of our major recommendations aimed at improving the agency's strategic planning and capital investment practices and indicated that it has already taken steps to begin implementing some of our recommendations. WMATA did not agree with the subpart of our second recommendation that calls for developing alternative capital funding strategies and project outcomes, depending on the availability of funding from federal, state, and local sources. WMATA cited its concern that developing contingency plans for addressing anticipated budgetary shortfalls would encourage its funding agencies to reduce the level of resources provided to WMATA. We continue to believe, however, that prudent management requires WMATA to plan for such shortfalls, which could be significant after WMATA completes its assessment of Metrorail's core capacity in the fall of 2001. WMATA's comments and our response are located in appendix V.

Our work was primarily performed at WMATA headquarters (see app. IV for a detailed description of our scope and methodology.) We conducted our work from September 2000 through June 2001 in accordance with generally accepted government auditing standards.

As arranged with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days after the date of this report. At that time, we will send copies of this report to the General Manager, WMATA; the Honorable Norman Y. Mineta, Secretary of Transportation; Hiram J. Walker, Acting Deputy Administrator, Federal Transit Administration; and the Honorable Mitchell E. Daniels, Jr., Director, Office of Management and Budget. We will make copies available to others on request.

If you have any questions about this report, please call me at (202) 512-2834 or Ronald E. Stouffer on (202) 512-4416. GAO contacts and staff acknowledgements are listed in appendix VI.

JayEtta Hecker

Director
Physical Infrastructure Issues

Appendix I: WMATA Is Addressing Significant Metrorail Operations and Maintenance Challenges

Metrorail's Operations and Maintenance Activities Have a Broad Scope and Represent a Major Portion of WMATA's Overall Operating Budget

The Washington Metropolitan Area Transit Authority (WMATA) operates and maintains the second largest rail transit system in the United States, as measured by the number of passengers carried per year. In fiscal year 2000 (July 1, 1999, through June 30, 2000), Metrorail carried about 163.3 million passengers. For the 9-month period ending in the third quarter of fiscal year 2001, ridership increased by almost 6 percent compared to the same period in fiscal year 2000.

Metrorail's operations and maintenance activities are extensive, including all activities required to operate and maintain the equipment and entire infrastructure that supports the movement of passengers. The Metrorail system, consisting of 103 miles of track, 83 stations, and 5 separate rail lines, operates 7 days a week, providing 18.5 hours of service each weekday and 18 hours daily on weekends. System maintenance activities include such things as cleaning, scheduled (preventive) maintenance, unscheduled repairs, and some upgrades. These maintenance activities are performed on a broad range of equipment and facilities that includes 762 rail cars; 103 miles of subway, surface, and elevated track; 576 escalators; 180 station elevators; 1,937 fare collection machines; 6 maintenance facilities; and other elements of the system's infrastructure.

Metrorail's revenues and expenses represent the largest portion of WMATA's overall operating budget. For example, in fiscal year 2000, Metrorail's operating expenses accounted for $392.1 million, or 56 percent of WMATA's overall operating expenses of $704.8 million. Furthermore, Metrorail brings in the largest portion of WMATA's internally generated operating revenues. In fiscal year 2000, for example, Metrorail's passenger fares and other revenues accounted for about $292.5 million, or 76 percent of WMATA's overall internally generated revenues of $384.9 million. As a measure of financial performance, Metrorail's cost recovery ratio represents one of the highest of any rail transit system in the nation, according to the Federal Transit Administration (FTA). For example, during fiscal years 1996 through 2000, Metrorail recovered, on average, 73 cents for every dollar that WMATA spent to operate and maintain the rail system.

WMATA Is Addressing Problems With Metrorail's Equipment and Infrastructure Through IRP

Metrorail has experienced vehicle, escalator, elevator, and other system equipment and infrastructure problems over the past several years. Data provided by WMATA show that vehicle, track, system, and other problems have resulted in, among other things, an increasing number of train delays and passenger "offloads."[1] For example, the number of train delays due to such problems increased from 865 in fiscal year 1996 to 1,417 in fiscal year 2000, or by about 64 percent.[2] At the same time, the number of passenger offloads increased by about 55 percent—from 783 in fiscal year 1996 to 1,212 in fiscal year 2000.

WMATA attributes these problems primarily to its aging rail equipment and infrastructure. Forty-five percent of Metrorail's 103-mile system is from 17 to 25 years old. Another 33 percent is from 9 to 16 years old. Only 22 percent is relatively new—constructed within the past 8 years. Similarly, 39 percent of Metrorail's 762 rail car fleet has been operating since 1976. Another 48 percent went into service during the 1980s, and only 13 percent is relatively new—placed into service in the mid-1990s. Further, an assessment of the condition of Metrorail's equipment and infrastructure performed in 1998 found that certain assets, such as stations and tunnels, were in a "degraded" condition, suffering from, among other things, deferred maintenance and postponement of rehabilitation due to funding constraints. The general effect of deferring maintenance is a lowering of overall system quality; an increase in the cost of regular and corrective maintenance; and an increase in the cost of rehabilitation work, when it is finally performed.

WMATA is addressing Metrorail's equipment and infrastructure problems through a number of projects in its Infrastructure Renewal Program (IRP). One key project being carried out under IRP is the Emergency Rail Rehabilitation Program, which is focused on reducing the serious service reliability problems—including problems with rail car equipment, train "wayside relays,"[3] and customer communications—highlighted in the

[1]WMATA defines passenger offloads as the unscheduled removal of all passengers from a train at a rail station when the train has either malfunctioned or must be used for recovery purposes, e.g., to assist in removing an inoperative train from service.

[2]According to WMATA officials, non-equipment-related train delays accounted for about 14 percent of the delays in fiscal year 1996 and 18 percent in fiscal year 2000. Such delays increased by 108 percent, from 121 in fiscal year 1996 to 252 in fiscal year 2000. They attributed these delays to an increase in ridership and rail fleet miles.

[3]Wayside relays control the spacing of trains, determine a train's route, and ensure safe speed limits.

spring of 1999. Now in its second year, this program has a number of goals, including reducing train delays and passenger offloads by 50 percent. To achieve these goals, the program provides for, among other things, accelerated maintenance projects to correct performance problems on the fleet's oldest rail cars, with all work scheduled to be completed by November 2003. The program also provides for additional maintenance efforts on station escalators and improvements in critical facilities and communication equipment, including additional fare gates and upgraded passenger announcement systems.

WMATA has made significant progress in carrying out many of the emergency program's rail system improvement projects. For example, by August 2000, WMATA had completed almost 8 of 12 car maintenance projects on such critical components as brakes and doors on 662 rail cars. Furthermore, WMATA's statistics show that for the period covering July 2000 through January 2001, the number of passenger offloads had decreased by 15 percent, compared with the same period in the previous year. In particular, WMATA officials noted that offloads during the spring "Cherry Blossom Season" in the metropolitan Washington, D.C., area decreased, on average, from 9 per weekday in 1999 to 4.8 per weekday in 2001. Other examples of WMATA's progress under the emergency program include the award of a contract for maintenance and rehabilitation of 170 station escalators; installation of rail system scanners at all station kiosks for status monitoring by station managers, allowing them to respond to passenger inquiries with real-time information on incidents and delays; installation of electronic display signs on station platforms, showing train arrivals and service delays; and installation of 44 additional fare gates.

In addition to the emergency rehabilitation program, IRP includes other key projects that address Metrorail's aging equipment and infrastructure problems. One of these—the rail car rehabilitation project—will enhance the reliability of 364 cars that were built in the 1980s. These cars will be overhauled and rehabilitated under a contract awarded in December 2000. The work, according to WMATA, will greatly reduce the cars' energy consumption and maintenance costs and improve their overall reliability. WMATA expects to take delivery of the first rehabilitated cars in August 2002. Work on all of the cars is expected to be completed by summer 2005.

Another key IRP project addresses the water infiltration problem that has occurred within the rail system's tunnels and stations. This problem has resulted in the degradation of critical wayside systems and equipment that are housed in the tunnels and stations, including automatic train control, communications, power equipment, cabling, and lighting. WMATA's leak

remediation project will control the infiltration of water while a related project will provide drainage in locations with standing water or extreme water infiltration. As of March 2001, approximately 3,700 leaks had been repaired out of about 4,600 scheduled for repair by the end of June 2001. In addition, WMATA has an ongoing multiyear contract to rehabilitate 14 drainage-pumping stations. By March 2001, the work on one pumping station had been completed and work on two others was beginning.

Some of the other IRP projects directed at improving the rail system include the following:

- *Rail car enhancements*: This project is designed to improve the accessibility, safety, maintenance, appearance, and reliability of the rail car fleet by retrofitting or replacing certain rail car equipment such as intercar barriers.
- *Station enhancements*: This project includes the rehabilitation, replacement, and installation of, among other things, concrete structures, sidewalks, stairwells, stairways, and exterior lighting to maintain the integrity of the stations' structures, prevent additional deterioration, and provide a safe environment for passengers.
- *Automatic train control (ATC) and power systems rehabilitation*: This project addresses the need to rehabilitate the ATC equipment and replace worn-out, obsolete electrical systems with new components that use new technology and save energy.
- *Track and structures rehabilitation*: This project is being carried out to control the corrosion and deterioration of track, tunnels, and elevated structures due to the effects of weather and water infiltration, among other things.

Metrorail's Operating Capacity Is Meeting Established Passenger Load Standards, But Standards Allow for Uncomfortably Crowded Trains

WMATA also faces operating challenges brought about by ever-increasing ridership. Metrorail is now operating at near capacity during peak demand periods, causing some uncomfortably crowded trains. WMATA has several actions under way to ease Metrorail's overcrowded conditions, including adding new rail cars to the system, which will allow Metrorail to increase the size of some trains.

Metrorail's current passenger load standards allow for an average of 140 passengers per car on all trains and 155 passengers per car on any single train during peak demand periods.[4] The current Metrorail fleet is composed of two types of cars. One type—the Rohr car—has a full-load capacity of 175, including 80 seated and 95 standing passengers. The other model—the Breda car—can also accommodate 175 passengers, but it has 12 fewer seats. For planning purposes, WMATA considers scheduled capacity—number of trains, cars per train, and intervals between trains—to be meeting ridership demands if the number of passengers in a car during the peak half-hour is, on average, 140 or fewer.[5] An average greater than 140 indicates that demand is exceeding capacity. Demand is also considered exceeding capacity when an individual trip exceeds an average of 155 passengers per car consistently throughout a month.

For the purpose of assessing rail service levels during peak demand periods, WMATA defines passenger loads and comfort levels as follows: (1) up to 99 passengers per car as "seated with some standing," (2) 100 to 124 passengers as "crowded but comfortable," (3) 125 to 149 passengers as "crowded and uncomfortable," and (4) 150 or more passengers as "crush load." In measuring Metrorail's performance over the 6-month period ending in January 2001, WMATA observed 233 trips during the peak morning hour (7:45 to 8:45); an average of 15 percent of the train cars were uncomfortably crowded, and about 8 percent had crush loads. At the same time, WMATA found that of the 225 trips observed during the peak afternoon hour (5:00 to 6:00), an average of 15 percent of the train cars were uncomfortably crowded, and about 5 percent had crush loads.

[4]WMATA defines "passenger load standard" as the desired number of passengers per car under maximum load conditions. The load standard affects both passenger comfort and operating efficiency, each of which is important in terms of quality of service. The load standard serves to determine (1) a passenger's ability to get on the first train going in the passenger's preferred direction of travel from any station, (2) the general probability of a passenger getting a seat, and (3) the general proximity of standees to other standees.

[5]WMATA defines "peak hour" as the 4 consecutive quarter hours when ridership is heaviest. Peak hours may vary from month to month at any station as shifts in demand occur.

Metrorail's overcrowded conditions are primarily the result of three separate but related factors. First, WMATA's records show that Metrorail ridership has grown by about 10 percent over the past 4 years—from about 148 million passengers in fiscal year 1997 to 163.3 million in fiscal year 2000. According to WMATA, during fiscal year 2000, on average, 558,000 weekday trips were taken on Metrorail, with several months experiencing daily average trips in the 580,000 to 590,000 range. The number of Metrorail trips that occur in the peak periods has grown at an even greater rate. Morning peak period ridership has increased 16 percent from fiscal year 1997 to fiscal year 2000. During the morning and afternoon peak periods, almost 200,000 people, on average, used the Metrorail system in 2000.

The second factor contributing to overcrowding is Metrorail's lack of a sufficient number of rail cars to operate more and longer trains on a regular basis, without creating service and reliability problems.[6] For example, in order to meet higher-than-expected ridership demands on the Green Line's new Branch Avenue extension, WMATA had to reduce by 6 the number of cars required for its strategic "gap trains" [7] and by 26 the number of cars in its operating spares inventory.[8] Like gap trains, the operating spares also contribute to service reliability. By reducing the number of operating spares and gap trains, WMATA was able to increase the number and size of the trains operating on the Green Line without reducing service on its other four lines. However, in reducing the number of operating spares and gap trains, WMATA recognizes that it also increased the potential for service disruptions due to mechanical problems.

Finally, if Metrorail had a sufficient number of vehicles to expand its rush-hour trains from six cars to eight cars, the trains would have more room to accommodate passengers, with the result that the most crowded trains would become more comfortable. Although the Metrorail system was

[6]The current fleet size allows Metrorail to operate only 4- and 6-car trains during peak demand periods.

[7]Gap trains, also known as ready reserve trains, help to ensure reliability—that is, help to maintain the regular schedule when a train is taken out of service because of a mechanical malfunction or other operating problem. Metrorail's current operating schedule calls for a gap train at the end of each line, staffed by an operator and ready to be placed into service on short notice.

[8]Operating spares help to ensure that a sufficient number of cars will be available for routine maintenance.

originally designed to accommodate eight-car trains, until recently, WMATA had been uncertain about whether longer trains could stop safely inside stations and whether the system had enough electricity to power longer trains on a regular basis. For example, all Metrorail cars are 75 feet long, and all station platforms measure 600 feet in length. This means that an eight-car train must stop precisely at the end of the platform for passengers to exit and enter the cars safely.

To address concerns about whether the rail system can operate and accommodate longer trains on a regular basis, Metrorail began testing eight-car trains on each of its lines in December 2000. The results of these tests, presented to the Operations Committee of the Board of Directors in March 2001, indicate that eight-car trains could be operated in limited service only if additional vehicles—besides those currently on order—are purchased and improvements are made to the power system and automatic train control equipment. Further use of eight-car trains would require an even greater investment in these and other elements of the system, such as maintenance and storage capacity. WMATA is examining Metrorail's core capacity needs to determine, among other things, what improvements in capacity—cars and power, for example—will be required to operate eight-car trains on a regular basis during peak demand periods.[9] WMATA expects to complete this study in the fall of 2001.

WMATA has other actions under way to ease Metrorail's overcrowded conditions. Most notably, the agency has ordered 192 new rail cars that it had planned to phase into service over the 12-month period beginning in the summer of 2001. However, WMATA suffered a setback in June 2001 when it took action to delay delivery of these cars until the rail car manufacturer corrects technical problems. As of late June 2001, WMATA officials told us that they now expect to begin phasing the first new cars into service by the fall of 2001.

The majority of the new cars will be placed into service where the heaviest ridership is occurring and will allow WMATA to adjust train sizes.[10] For

[9]The overall purpose of the core capacity study is to determine what improvements or modifications will be needed to Metrorail's "core"—defined as 29 stations in downtown Washington, D.C., and some of its immediate suburbs—in order to accommodate projected ridership increases and system expansion requirements by the year 2025.

[10]WMATA plans to use the remaining rail cars to support the Breda car rehabilitation project, service the Branch Avenue extension, and provide additional operating spares.

example, on some lines, the train size will change from four cars to six cars. WMATA does not anticipate that the additional cars will have a large effect on passenger comfort levels, especially if ridership continues to grow; however, it believes the new cars will reduce the percentage of trips with crush loads. According to WMATA, the new cars were intended to address a 1-percent per year growth in ridership, but Metrorail has been averaging more than that. WMATA has also established goals for improving Metrorail's passenger load standards and therefore passenger comfort levels. Although no time limit has been established for achieving these goals, they include reducing the primary load standard from 140 to 105 passengers per car on all trains—a 25-percent reduction—and reducing the secondary load standard from 155 to 115 passengers per car on any single train—a 26-percent reduction—during peak demand periods.

Delivery of 192 New Rail Cars Could Stretch Metrorail's Maintenance and Repair Shop Capacity to the Limit

WMATA's maintenance and repair shop capacity could be stretched to near maximum levels as early as the fall of 2001 with the expected delivery of the first group of the 192 new rail cars. Furthermore, Metrorail's repair shop capacity may be exhausted when delivery of the remaining rail cars is completed by the fall of 2002. WMATA is determining whether and how its current shop capacity could be expanded.

WMATA's ability to regularly maintain and repair its rail fleet directly affects the reliability and quality of Metrorail service. Currently, WMATA has 6 facilities with a total capacity to maintain and repair 118 cars daily. These facilities are located throughout the Metrorail system. The oldest and largest shop, opened in 1974, is 1 of 2 facilities able to service more than 20 cars each and perform heavy repairs and overhauls in addition to scheduled maintenance and unscheduled repairs. Of the remaining 4 facilities, 3 have the capacity to service 20 cars each; 1 facility has only 8 repair spaces. WMATA plans to open a new facility in 2002 that will expand its current capacity to accommodate 126 cars. As of March 2001, Metrorail's total available fleet consisted of 762 cars.

Given that WMATA has shop spaces for 118 cars and that some cars can be repaired outside of the shop, repair shop capacity in fiscal year 2000 was sufficient, for planning purposes, to support Metrorail's maintenance and repair requirements. According to WMATA, the number of shop spaces required for maintenance and repairs equals the number of cars needed for revenue service, plus the number of spare cars (20 percent of the available fleet) needed for fleet management, multiplied by a factor of 15 percent (the typical number of cars held out of revenue service daily for maintenance and repairs). WMATA also considers the fact that about 15

percent of "running repairs"—repairs to address problems that occur while vehicles are in service—can be performed safely outside of the repair shop. WMATA typically holds about 112 rail cars out of service daily for maintenance and repair.

However, WMATA officials told us that they expect to receive about 80 of the 192 new rail cars by the end of the fall of 2001, which will increase the available fleet size to 842 cars. Of the 80 new cars, 32 are required for service on the Green Line's Branch Avenue extension. The remainder will be placed into revenue service where required. Thus, by the end of the fall of 2001, WMATA could need 126 repair shop spaces—15 percent of the 842-car fleet—or 8 more than capacity. Depending on the number of cars that can be repaired outside of the repair shop, shop capacity could be inadequate to meet requirements at that time. Further, because the new cars will require acceptance testing before they are placed into service, WMATA will have to relinquish four shop spaces to the manufacturer. Testing, which could require at least 5 days for each car, will be done at one of the larger facilities, where four shop spaces have been dedicated to the car manufacturer.

As the balance of the new cars are delivered—10 cars per month over 11 months following the initial delivery in the fall of 2001—repair shop capacity could become even more of a problem by the fall of 2002. At that time, WMATA will have 126 shop spaces and the number of cars required for revenue service will have increased to 914 (762 existing cars, plus 192 new cars, less the 40 cars scheduled for rehabilitation). Consequently, WMATA could need 136 repair shop spaces—15 percent of the 914-car fleet—or 10 more than capacity. Furthermore, WMATA plans to order a total of at least 94 additional vehicles to accommodate new revenue service on the Largo extension to the Blue Line in Maryland (which is currently under construction), increased demand on the Orange Line in Virginia due to service expansion, and service growth on other existing rail lines. WMATA plans to begin the process for procuring these cars in summer 2001 in order to meet projected passenger demands on the Largo extension by early 2005.

Although WMATA officials believe that the agency's current shop capacity may not be favorable for the expeditious turnaround of vehicles requiring maintenance and repair, they pointed out that they are taking steps to ease the capacity problem. For example, in the near term, WMATA has four "blow down pits"—spaces in its largest repair shops used to clean the underside of a car prior to its scheduled maintenance—that can also be used for maintenance and repair. At the same time, however, WMATA

recognizes that it has no capacity to maintain and repair the 94 additional cars. According to WMATA's 1999 rail fleet management plan, the number of cars requiring scheduled maintenance and unscheduled repairs is expected to rise over the next 5 years. This increase in maintenance and repairs will occur because (1) the newer Breda cars will be nearing their midlife; (2) the renovation of the Rohr cars will be 10 years old and the cars will be nearing the end of their service life; and (3) a total of 286 new rail cars will have been added to the fleet, increasing the fleet size by about 37 percent.

WMATA is taking two actions to address the maintenance and repair shop capacity problem. First, WMATA is surveying its existing shops to determine whether their capacity can be expanded. The agency expects to complete the survey in the fall of 2001, possibly beginning expansion efforts as early as 2002. The most likely shop to be expanded first is the smallest one, where the number of shop spaces would be increased from 8 to 20. Second, WMATA plans to build a new repair shop within the Dulles Corridor in Virginia. However, this facility will not be available until about 2010, when the Dulles Corridor rail line extension is expected to be completed.

Appendix II: WMATA Has Established Safety and Security Programs

Federal Government Has a Minimal Role Overseeing WMATA's Rail and Bus Safety

At the direction of Congress, the federal government has delegated responsibility for overseeing WMATA and other transit agencies' rail safety activities to state agencies.[1] In December 1995, FTA issued a state safety oversight rule for rail fixed guideway systems. However, there are no similar federal rules that govern the safety of transit bus systems. In 2000, FTA initiated a voluntary transit bus safety program to promote a better understanding of state safety regulations and disseminate assistance to the industry.

A Tri-State Oversight Committee Oversees WMATA's Rail Safety Program

In December 1995, FTA issued a state safety oversight rule (49 C.F.R. Part 659) requiring states to oversee the safety of rail fixed guideway systems.[2] According to FTA, the rule was designed to reduce all incidents that harm passengers and employees, whether these incidents are the result of unintentional occurrences (safety) or intentional acts (security). The state safety oversight rule includes provisions for passenger and employee security in recognition that safety and security risks are interrelated for rail transit passengers and employees.

Under the rule, states are to designate an oversight agency (or agencies) to oversee the safety of the rail transit systems operating within its borders.[3] When the rail system operates within only a single state, that entity must be an agency of the state; when it operates in more than one state, the affected states designate a single entity to oversee the system. The state may not designate the rail transit system as the oversight agency.

In March 1997, transportation departments from Maryland, Virginia, and the District of Columbia designated the Tri-State Oversight Committee (TOC) as the state oversight agency for WMATA. As required by the rule,

[1]The Intermodal Surface Transportation Efficiency Act of 1991 amended the Federal Transit Act (49 U.S.C. 5330) to require FTA to issue a regulation providing for state oversight of rail transit systems. This regulation was intended to improve the safety of rail systems.

[2]According to 49 C.F.R. 659.5, rail fixed guideway systems are any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway that is included in FTA's calculation of fixed guideway route miles or receives funding under FTA's formula grant program for urbanized areas and is not regulated by the Federal Railroad Administration.

[3]Currently, there are 35 rail fixed guideway systems operating in 21 states and the District of Columbia. Twenty-two state oversight agencies have been designated to implement the state safety oversight rule requirements.

TOC developed a system safety program standard, a document that establishes the relationship between the oversight and transit agencies and specifies the procedures that the transit agency must follow. In addition, the oversight agency requires WMATA to develop and implement system safety and security program plans, report accidents and unacceptable hazard conditions, and conduct safety reviews. WMATA has developed both system safety and security plans to comply with the state safety oversight rule. The plans are companion documents, which together act as a blueprint for providing safety and security for WMATA.

Under the state safety oversight rule, FTA has the responsibility to monitor and evaluate the states' compliance with the rule. In the fall of 1998, FTA initiated a State Safety Oversight Audit Program to support monitoring activities for the rule. Under this program, FTA audits determine whether state oversight agencies are carrying out the program and examine ways in which the overall program can be improved. In February 2000, FTA completed an audit of TOC, during which FTA identified six deficiencies and three areas of concern. FTA found, among other things, deficiencies in TOC's (1) process for reviewing the system safety program standard and program plan, (2) hazardous condition investigations and corrective actions, (3) 3-year safety reviews, and (4) oversight agency reporting and certification to FTA. For example, FTA found that TOC had no formal procedures for approving and tracking corrective actions. The purpose of the corrective action plan management process is to document communication between the rail system and the oversight agency regarding the resolution of identified hazards. In response to this deficiency finding, TOC agreed to review and discuss with WMATA its corrective action plans at regularly scheduled meetings, vote to approve or disapprove those measures, and require that additional measures be included in the action plan. According to an FTA official, the agency is satisfied with TOC's responses to all of its audit findings.

Little Federal or State Oversight of Transit Bus Safety

There is no overall federal regulation requiring oversight for transit bus safety.[4] Under authority provided by the Motor Carrier Safety Act of 1984, the Federal Highway Administration (FHWA) has exempted passenger carrier operations that were part of federal, state, or quasi-public operations.[5] FHWA has no authority to perform any safety reviews or inspections of transit bus operations.

In 1998, the National Transportation Safety Board (NTSB) reported that there were substantial safety deficiencies in, and little federal or state oversight of, the transit bus industry. According to NTSB, the federal government was spending, at that time, over $6 billion to subsidize the operation of transit agencies, yet the safety oversight of transit bus operations was essentially nonexistent. FTA had a state safety oversight program but, as described previously, it applied only to those agencies conducting rail transit operations.

According to NTSB, FTA has traditionally looked either to state regulation, if it exists, or to self-regulation by the transit industry to safeguard the public's use of transit systems. However, FTA has only a few methods for assessing the safety of transit bus agencies that receive federal funding, including (1) sharing safety information among transit agencies, (2) performing triennial oversight reviews of all transit functions that may include a few safety-related questions, and (3) conducting investigations of safety hazards under 49 U.S.C. 5329.[6] According to NTSB, however, none of these methods provide a comprehensive assessment of transit bus safety throughout the country or a remedy for any of the problems that may exist. Accordingly, the NTSB report recommended that DOT develop

[4]FTA is in a unique position among Department of Transportation modal authorities. Unlike the Federal Railroad Administration and the Federal Aviation Administration, FTA does not have extensive safety regulatory authority. Currently, FTA is limited to enforcement of three legislative mandates, including investigation of conditions that may cause a serious hazard of death or injury, substance abuse and management testing programs, and state safety oversight of rail fixed guideway systems.

[5]49 C.F.R. Part 390.3(f)(2) exempts, with the exception of recordkeeping requirements of Part 390.15, transportation performed by the federal government, a state or any political subdivision of a state, or an agency established under a compact between states that has been approved by the Congress.

[6]Under 49 U.S.C. 5329, "Investigation of Safety Hazards," the Department of Transportation may withhold funds from a transit agency if the Department establishes that a condition causes a serious hazard of death or injury.

and implement an oversight program to assess and ensure the safety of transit bus operations that receive federal funding.

In November 2000, FTA's Office of Safety and Security initiated a bus transit safety program in response to concerns about the potential for catastrophic bus accidents. According to FTA officials, the overall objective of the program is to foster a better understanding of transit bus safety and disseminate technical assistance to the industry. FTA identified several program tasks, including developing a model transit bus safety program. Ultimately, potential models for a national framework will be presented that could provide transit bus safety practice guidance for bus entities. According to FTA, the program is not intended to create a bus oversight program that mirrors the rail fixed guideway safety oversight program; rather, its purpose is to compare and contrast current approaches to bus safety regulation and oversight in the country in hopes of identifying best practices for large and small transit bus systems. According to an FTA safety official, FTA will receive and incorporate comments from industry groups like the American Public Transportation Association (APTA) on program tasks and hopes to have all of the program tasks completed by the summer of 2001.

WMATA Has Established Practices to Monitor Safety Conditions

WMATA's primary mission is to provide safe and reliable public transportation service. Thus, safety considerations encompass all aspects of WMATA's functions from planning and design to construction and operations. According to WMATA, safety is a major consideration at every stage of all of its rail and bus activities. WMATA addresses safety objectives through its system safety program plan, but it has also responded to outside safety reviews by FTA and others. In addition, the transit agency collects and analyzes safety performance data to determine if safety performance meets established safety objectives.

WMATA's Safety Plan Defines Requirements

In 1983, WMATA's Board of Directors approved a system safety policy statement establishing the transit authority's safety philosophy and objectives. Among other things, the policy statement directed WMATA to develop a comprehensive system safety program plan to eliminate or control safety hazards and reduce accident rates. In response to the Board, WMATA developed a plan that sets forth requirements for identifying, evaluating, and minimizing safety risks through all elements of the Metrorail and Metrobus systems. The plan identifies management and technical safety and fire protection activities performed during all phases of bus and rail operations. It also defines formal requirements for, among

other things, (1) the implementation of established safety and fire protection criteria; (2) mechanisms for identifying and assessing safety hazards; and (3) methods for conducting investigations of accidents, incidents, or unsafe acts.

WMATA's current General Manager has delegated specific safety responsibilities to the transit agency's Chief Safety Officer. The Chief Safety Officer has a staff of 26 people and is responsible for managing system safety, occupational safety and health, accident and incident investigation, fire protection, oversight of construction safety and environmental protection, and for monitoring the system safety program plan. Safety personnel investigate accidents involving fatalities, serious injuries, multiple hospitalizations, major fires, and derailments.

WMATA Responds to Safety Reviews

WMATA is subject to a variety of oversight reviews and audits by federal agencies and private and regional associations, such as APTA, TOC, and FTA. For example, several serious accidents and incidents occurring in the mid-1990s in WMATA's subway system raised concerns about safety and led to a 1997 report by FTA. Since then APTA has also conducted safety-related reviews of WMATA's operations.

In September 1997, FTA reported on its review of WMATA's rail operations and found serious deficiencies in WMATA's safety-related operating practices. FTA reviewed WMATA following a series of accidents and incidents at WMATA that raised concerns about the transit authority's commitment to safety as its top priority. For example, in January 1996 a train operator was killed at a station when his train slid on icy tracks into parked railcars. In April of the same year, WMATA disconnected the operating mechanisms for the midcar emergency doors on about 100 rail cars without informing the public. Later that month, two workers were injured when their tools made contact with a live electrical cable that should have been deactivated while tracks were being repaired. In addition, a delayed response to a fire in May 1996 put firefighters and passengers at risk.

FTA's review concluded that WMATA had not kept abreast of the formal disciplines that constitute system safety, such as having a planned approach to system safety program tasks, and had not provided appropriate financial and personnel resources to accomplish tasks. In addition, FTA found that WMATA's safety efforts had been weakened by frequent changes in the reporting level of the safety department, staff and budget reductions, and a deemphasis of safety awareness in public and

corporate communications. For example, WMATA's safety department had moved several times within the organization, making its work difficult, its priorities uncertain, and its status marginal. Also, from 1992 to 1996, safety department staff was reduced from 17 to 12 positions, and only 8 positions were filled at the time of FTA's review. Finally, as a result of the safety department's movement through the organization, it became responsible for other functions, further reducing its ability to meet its safety responsibilities. According to FTA, these limitations were reflected in, among other things, the absence of strong public and employee safety awareness programs.

FTA's report found that these problems existed before the arrival of the current management team in the fall of 1996 and concluded that WMATA had taken important first steps to change the situation. For example, in 1996, WMATA's new General Manager made safety a priority and selected a new Chief Safety Officer who would report directly to him. The General Manager also directed a review of the transit authority's safety function and revised its system safety program plan, which now includes detailed protocols for identifying and assessing hazards. According to an FTA safety official, WMATA's safety program is considered "very good" compared to the safety programs at other transit agencies.

Under FTA rules, state oversight agencies must conduct an on-site safety review of the transit agency's implementation of its system safety program plan at least every 3 years. As WMATA's state oversight agency, TOC used APTA to conduct a safety review in September 1998. APTA's audit addressed policies, processes, and procedures as set out in WMATA's system safety program plan and included a review of supporting documentation, interviews with agency personnel, and field observations. In its subsequent report, APTA found 12 deficiencies in such areas as quality assurance programs, plant maintenance, and engineering and technical support and operations. According to APTA, since issuance of its report, WMATA has developed corrective action plans for each of the deficiencies that demonstrate the transit authority's commitment to strengthening performance standards and ensuring that the processes are effective and prevalent throughout the agency. APTA also concluded that although it does not comparatively rate transit systems as to how effective they are in managing and implementing their safety programs, WMATA is regarded as one of the industry leaders in transit system safety program development and implementation.

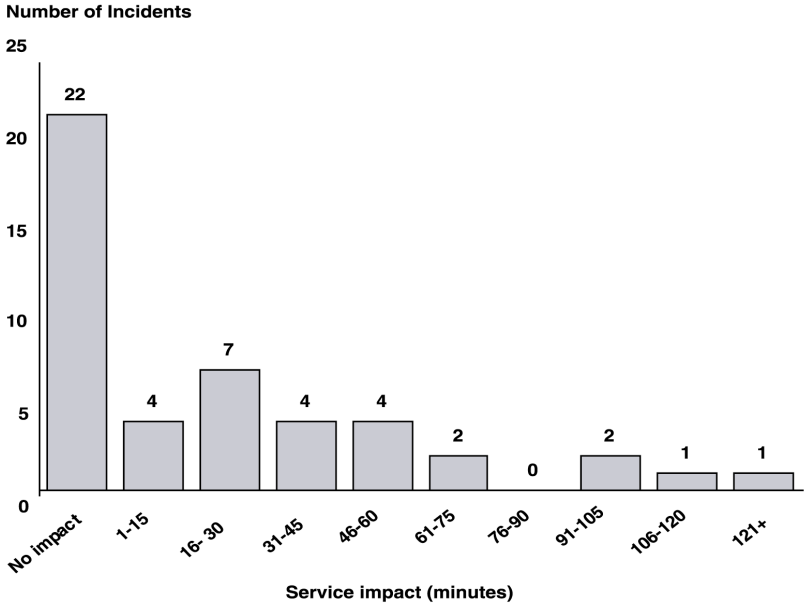
WMATA Is Addressing the Problem of Tunnel Fires

More recently, WMATA acted to address problems resulting from a tunnel fire that occurred in April 2000. A power cable shorted out in a tunnel between two subway stations, causing an electrical tunnel fire, extremely lengthy delays in service, and the need to evacuate passengers from a subway train. In response to the incident, WMATA created a safety task force to review its operations control center's handling of the incident. In addition, WMATA's General Manager asked APTA to conduct a comprehensive peer review of the transit agency's emergency procedures for handling tunnel fires. Specifically, the General Manager asked APTA to review WMATA's general agency policies, procedures, rules and practices; coordination with emergency responders; operations control center policies and practices; and front-line employee response to fires. APTA's findings and recommendations were, in many ways, consistent with the findings of WMATA's internal investigation. For instance, APTA and WMATA's recommendations supported the need for efforts to formalize and strengthen training for operations control center personnel and ensure that emergency procedures are addressed in the training and certification of operations staff.

The 2 reviews made 32 recommendations affecting fire safety policy and procedure, related equipment, communications, and training. At the time of our review, WMATA had taken actions to implement 30 of the 32 recommendations. According to WMATA's Chief Safety Officer, the agency developed a list of corrective actions as a result of the fire, is training its staff to communicate more effectively with fire authorities so everyone understands incidents that are taking place, and plans to open a fire training center to train WMATA employees and local firefighters.

According to the Chief Safety Officer, WMATA also started collecting information on fire and smoke incidents in Metrorail and Metrobus operations after the April 2000 tunnel fire. These incidents include cable fires, trash fires, and smoke incidents. Figure 1 shows that 22 of the 47 fire and smoke incidents occurring in the Metrorail system from April 20, 2000, to December 31, 2000, had no impact on service. However, other smoke and fire incidents have caused delays in Metrorail service of as much as 2 hours.

Figure 1: Impacts on Service from Smoke and Fire Incidents



Source: GAO presentation of data provided by WMATA.

WMATA Evaluates Performance Indicators to Monitor Safety

WMATA collects and analyzes safety data to determine if safety performance meets established safety objectives. Analysis of this system-specific data can be used to determine trends and patterns in system operation. WMATA reports information, such as injuries, collisions, and derailments occurring in its Metrobus and Metrorail systems, to its Board of Directors and others on a quarterly and annual basis. Table 2 shows the number and injury rates for rail station and rail on-board injuries for fiscal years 1996 through 2000. Rail station injuries include, among other things, elevator and escalator injuries; injuries on platforms, mezzanines, and free areas; and injuries occurring outside stations. Rail on-board injuries occur inside trains due to doors, defective equipment, and boarding or alighting trains. A WMATA safety official told us that most of these injuries were not serious.

Table 2: Rail Injuries Reported by WMATA, Fiscal Years 1996 Through 2000

	Rail station injuries		Rail on-board injuries	
Fiscal Year	**Injuries**	**Injury rate[a]**	**Injuries**	**Injury rate[a]**
1996	391	.41	108	.11
1997	355	.37	128	.13
1998	321	.28	111	.10
1999	366	.34	89	.08
2000	474	.43	163	.15
Total injuries	**1,907**		**599**	
Average injury rates		.37		.11

[a]Based on injuries per 1 million passenger miles.

Source: GAO presentation of data provided by WMATA.

Table 2 shows that WMATA has experienced low rail station injury rates over the 5-year period—only 0.37 injuries per 1 million passenger miles. However, the absolute number of rail station injuries increased from 366 in fiscal year 1999 to 474 in fiscal year 2000, and the injury rate increased from 0.34 to 0.43 for the same 2 years. WMATA officials attribute this increase primarily to the crowding resulting from increased ridership.

WMATA documents show that over 50 percent of all rail station injuries have occurred on escalators. According to WMATA's Chief Safety Officer, the root causes of the majority of these incidents are human factors, not equipment failure, employee performance, or unsafe conditions. In fiscal years 1999 and 2000, for example, no escalator incidents were caused by electrical or mechanical failure or unsafe conditions. WMATA is promoting escalator safety by conducting public awareness campaigns (e.g., brochures and community outreach) and adding safety devices, such as shut-off switches and glide stops.

Table 2 shows that rail on-board injuries and injury rates have also been low over the 5-year period. However, the number of injuries and the injury rate almost doubled between fiscal years 1999 and 2000. WMATA documents show that boarding and alighting trains has accounted for, on average, about 45 percent of all rail on-board injuries during the 5-year period.

Our review of WMATA documents also shows that rail collisions and derailments occur infrequently. For example, as shown in table 3, WMATA has experienced 18 rail collisions from fiscal year 1996 through fiscal year 2000, with only 1 occurring in fiscal year 2000. WMATA defines rail collisions as collisions of trains in revenue service with other trains,

equipment, or objects on tracks that result in damage to equipment or property. According to a WMATA safety official, none of these collisions involved two trains; rather, most incidents involved a train hitting an object that was on or near train tracks. None resulted in a fatality. In addition, there have been only two train derailments involving trains in revenue service that were transporting passengers during the 5-year period, both occurring in fiscal year 1999. A WMATA safety official said that neither of these incidents resulted in injuries. Table 3 shows rail collisions and derailments occurring during fiscal years 1996 through 2000.

Table 3: Rail Collisions and Derailments Reported by WMATA, Fiscal Years 1996 Through 2000

Year	Rail collisions	Derailments
1996	4	0
1997	6	0
1998	4	0
1999	3	2
2000	1	0
Totals	**18**	**2**

Source: GAO presentation of data provided by WMATA.

Table 4 shows that bus passenger injury and bus collision incident rates have remained stable during fiscal years 1996 through 2000, although both total injuries and collisions increased over the last year.[7] According to WMATA, it suspects increases in bus ridership as well as inexperienced operators driving in increasingly congested traffic areas and on new and extended routes as the cause for increased bus incidents. For example, WMATA recently hired 766 new operators to cover retirements. Nevertheless, WMATA considers more than 60 percent of these incidents to be nonpreventable. WMATA has new and planned programs to reduce bus incidents, such as recognition programs, spot checks, a mentor program, promotional programs, route assessments, and new traffic warning signs to prevent rear-end collisions.

[7]Bus passenger injuries include injuries occurring from collisions with vehicles, objects, or persons; personal casualties inside vehicles; injuries while boarding and alighting vehicles; and injuries associated with wheel chair lifts. Collisions include collisions with other vehicles, persons, or objects resulting in injury or property damage.

Table 4: Bus Passenger Injuries and Collisions Reported by WMATA, Fiscal Years 1996 Through 2000

	Bus passenger injuries		Bus collisions	
Year	Injuries	Injury rate[a]	Collisions	Collision rate[b]
1996	1,001	2.17	591	14.2
1997	986	2.17	568	14.0
1998	946	2.20	567	14.0
1999	921	2.20	526	12.2
2000	989	2.20	664	14.8
Totals	**4,843**		**2,916**	
Average injury and collision rates		2.19		13.8

[a]Based on injuries per 100,000 passenger miles.

[b]Based on collisions per 1 million vehicle miles.

Source: GAO presentation of data provided by WMATA.

During fiscal years 1996 through 2000, there were a total of 21 fatalities in WMATA's transit system—11 fatalities in the Metrobus and 10 in the Metrorail systems. Of the 11 bus fatalities, 5 involved bus collisions with other vehicles, 4 involved persons being struck by a bus, 1 person died on board a bus during an accident, and 1 person died while alighting a bus. Of the 10 rail fatalities, 4 were suicides, 2 involved escalator entrapment, 2 occurred boarding or alighting trains, 1 was the WMATA employee killed in the 1996 incident mentioned previously, and 1 was a person killed when struck by a train.

WMATA's Transit Police Department Provides Security for Operations

WMATA's Metro Transit Police Department is responsible for the system's transit security—which has been defined as freedom from intentional danger for passengers, employees, and the transit system. The department has jurisdiction and arrest powers on WMATA property throughout the 1,500 square mile transit zone that includes Maryland, Virginia, and the District of Columbia and has an authorized strength of 320 sworn and 103 civilian personnel. According to WMATA, its police department, which is the only nonfederal trijurisdictional police agency in the country, is responsible for law enforcement, revenue protection, and security services. Similar to his emphasis on safety issues, WMATA's current General Manager has delegated authority to the Chief of Police to plan, direct, coordinate, implement, and evaluate all police and security activities for the transit agency. WMATA has developed a systemwide security program plan, participates in external security reviews, and collects and evaluates crime statistics.

WMATA's Security Plan Is Proactive

To emphasize the importance of system security, WMATA's Metro Transit Police Department established a set of comprehensive security activities documented in its system security program plan. The plan is designed to maximize the level of security experienced by passengers, employees, and other individuals who come into contact with the transit system and to minimize the cost associated with the intrusion of vandals and others into the system. As noted previously, the system security program plan is a companion document to the system safety program plan.

One of the security plan's objectives is to make the transit system more proactive in preventing and mitigating security problems. Many proactive security measures have been in place since the inception and design of the transit system, including station lighting, recessed walls, closed circuit televisions, and alarm systems. WMATA has also developed strategies to reduce crime and provide a secure environment, including strict enforcement of a "zero tolerance" philosophy on crime, emphasis on prevention rather than a response to crime, and crime prevention training for civilians and WMATA employees.

WMATA Participates In FTA's Security Audit Program

The amount of serious transit-related crime has fallen nationwide over the last few years. Nevertheless, according to FTA, the public's perception about the lack of security continues to have a significant impact on transit ridership nationwide. To combat this perception, FTA initiated a voluntary transit security audit program in 1996. The goal of the program is to assist transit agencies in achieving the highest potential level of a safe and secure transportation environment by encouraging transit systems to develop, implement, and maintain a transit security system that will protect passengers, employees, vehicles, revenue, and property. The program has four objectives, including (1) providing assistance to transit agencies in developing and initiating system security program plans; (2) evaluating the level of preparedness of each system; (3) sharing best practices used by transit police, security, and operations personnel to enhance security for passengers and employees; and (4) evaluating the quality of security provided by transit systems for passengers, employees, and system facilities. Since the program started, FTA has completed two security audits of WMATA.

In April 1997, FTA conducted its first on-site transit security audit of WMATA. At that time, FTA officials stated that they were impressed with efforts taken by WMATA transit police and the operating and maintenance departments to comply with FTA's security requirements. Furthermore, FTA found that the comprehensive nature of WMATA's security program

demonstrates a high level of attention to passenger and employee security. FTA recommended that the transit police play a greater role in the development of agency operating procedures and training programs. It also recommended the development of a technology plan to address police radio communications, the crime records system, and the use of mobile data terminals for filing police reports. In its October 1997 follow-up audit, FTA stated that it was pleased with WMATA's efforts to comply with FTA's previous recommendations and suggestions. In addition, FTA observed exemplary security practices and found that WMATA's transit police were very committed and well supported by top management. The audit recommended, among other things, that the transit police increase its involvement in developing and distributing procedures for systemwide security-related issues. FTA will conduct further security reviews of WMATA on a regular basis under its security audit program.

WMATA Evaluates Statistics on Efforts to Combat Crime

In everyday practice, WMATA's transit police and its security management team are faced with the need to allocate and assign available security personnel and other resources to best address crime and incidents and to enhance the public's perception of the transit system as being a safe environment. WMATA collects and analyzes summary statistics to identify trends in crime, assess performance, and design appropriate countermeasures. WMATA's reporting system groups crimes into two categories that are similar to, but not entirely consistent with, the Federal Bureau of Investigation's Uniform Crime Reporting System.[8] Currently, WMATA's Part I crimes include eight crime categories such as arson, homicide, and robbery. Part II crimes include other "less serious" crimes, such as disorderly conduct, drunkenness, and trespassing. WMATA plans to revise its crime categories by January 2002 to be consistent with the Federal Bureau of Investigation's reporting system.

Part II crimes occur much more frequently than Part I crimes in WMATA's Metrorail and Metrobus systems. From 1996 through 2000, for example,

[8]The categorization of offenses in the Federal Bureau of Investigation's reporting system is based on the amount of reporting required for each. For example, both incidents and arrests are reported for Part I crimes. Only arrests are reported for Part II offenses. The difference in reporting recognizes the inherent qualities of offenses that dictate that some are appropriate indicators of the dimensions and trends in crime on a national scale. Offenses are categorized as Part I if they meet certain criteria, such as the (1) seriousness or significance of the offense, (2) frequency or volume of its occurrence, and (3) prevalence of the offense nationwide. All crimes that are not Part I offenses are Part II offenses.

Part II crimes accounted for 72 percent (13,556 crimes) of the nearly 19,000 total crimes committed in the transit system. Part I crimes accounted for only 28 percent (5,401) of all crimes. Yearly total crime counts for the 5-year period ranged from a high of 4,491 crimes in 1998 to a low of 3,510 in 1996. Table 5 shows Part I and Part II crimes committed in the transit system for the 5-year period.

Table 5: Total Crimes Reported by WMATA, 1996 Through 2000

	1996		1997		1998		1999		2000		Totals	
	Total crimes	Percent of crimes	Total crimes	Percent of crimes	Total crimes	Percent of crimes	Total crimes	Percent of crimes	Total crimes	Percent of crimes		
Part I crime	1,229	35	1,018	29	1,116	25	967	26	1,071	29	5,401	28
Part II crime	2,281	65	2,514	71	3,375	75	2,820	74	2,566	71	13,556	72
Totals	**3,510**	**100**	**3,532**	**100**	**4,491**	**100**	**3,787**	**100**	**3,637**	**100**	**18,957**	**100**

Source: GAO presentation of data provided by WMATA.

As table 6 shows, Part I crimes are committed more often in the Metrorail system than in the Metrobus system. From 1996 through 2000, for example, Part I crimes were committed, on average, about 7 times per million riders in the rail system. In contrast, Part I crimes occurred less than once per million riders on the bus system. Larceny, motor vehicle theft, and robbery accounted for the majority of all Part I crimes committed in WMATA's entire transit system. From 1996 through 2000, for example, those 3 crime categories accounted for, on average, 93 percent (5,030 crimes) of all Part I crimes. Of those 3 categories, larceny made up, on average, 51 percent of all Part I crimes. Other Part I crimes, such as burglary, homicide, and rape, occurred rarely. Table 6 shows Part I crimes committed in the transit system from 1996 through 2000.

Table 6: Part I Crimes Reported by WMATA in its Metrorail and Metrobus Systems, 1996 Through 2000

	1996		1997		1998		1999		2000	
Type of crime	Number	Percentage distribution[b]	Number	Percentage distribution	Number	Percentage distribution	Number	Percentage distribution	Number	Percentage distribution
Agg. Assault	80	7	72	7	68	6	62	6	57	6
Arson	1	0	0	0	1	0	0	0	3	0
Burglary	12	1	3	0	7	1	3	0	0	0
Homicide	0	0	0	0	0	0	1	0	1	0
Larceny	586	48	474	47	638	57	514	53	536	50
Motor vehicle theft	245	20	219	.22	216	19	205	21	252	24
Rape	0	0	0	0	0	0	0	0	0	0
Robbery	305	25	250	25	186	17	182	19	222	21
Totals	**1,229**	**101**	**1,018**	**101**	**1,116**	**100**	**967**	**99**	**1,071**	**100**
Bus incident rate[a]	.50		.72		.55		.61		.37	
Rail incident rate[a]	7.89		6.18		6.73		6.20		6.03	

[a]Incident rates are based on Part I crime per million riders.

[b]Percentages may not add to 100 due to rounding.

Source: GAO presentation of data provided by WMATA.

WMATA's crime statistics show that Part I crimes are committed much more frequently in WMATA's parking lots than on either its Metrobus or Metrorail systems. Part II crimes, however, have been more evenly distributed between parking lots and the Metrorail system over time. From 1996 through 2000, for example, Part I crimes were committed, on average, 64 percent of the time in parking lots and about 31 percent of the time in the Metrorail system. Over the 5-year period, Part II crimes have been committed, on average, about 54 percent of the time in the Metrorail system and 40 percent of the time in parking lots. To address the problem of parking lot crimes Metro recently increased its undercover patrols of the system's parking lots. Metrobus has experienced only about 6 percent of all Part I and 6 percent of all Part II crimes for the 5-year period. Table 7 shows crimes committed by location from 1996 through 2000.

Table 7: Location of Part I and Part II Crimes Reported by WMATA, 1996 Through 2000

	1996		1997		1998		1999		2000	
Part I crime	**Number**	**Percentage distribution**	**Number**	**Percentage distribution[a]**	**Number**	**Percentage distribution**	**Number**	**Percentage distribution**	**Number**	**Percentage distribution**
Metrobus	68	6	78	8	56	5	69	7	52	5
Metrorail	406	33	312	31	334	30	232	.24	333	31
Parking lots	755	61	628	62	726	65	666	69	686	64
Part I totals	**1,229**	**100**	**1,018**	**101**	**1,116**	**100**	**967**	**100**	**1,071**	**100**
	1996		**1997**		**1998**		**1999**		**2000**	
Part II crime	**Number**	**Percentage distribution**	**Number**	**Percentage distribution**	**Number**	**Percentage distribution**	**Number**	**Percentage distribution**	**Number**	**Percentage distribution**
Metrobus	192	8	169	7	210	6	175	6	164	6
Metrorail	1,109	49	1,221	49	1,712	51	1,292	46	1,383	54
Parking lots	980	43	1,124	45	1,453	43	1,353	48	1,019	40
Part II totals	**2,281**	**100**	**2,514**	**101**	**3,375**	**100**	**2,820**	**100**	**2,566**	**101**

[a]Percentages may not add to 100 due to rounding.

Source: GAO presentation of data provided by WMATA.

Appendix III: WMATA Is Addressing its Major Capital Requirements But Could Benefit From a More Formal Capital Planning Process

In a December 1998 report,[1] GAO identified capital decision-making principles and practices used by outstanding state and local governments and private sector organizations. In this report, we describe WMATA's Capital Improvement Program and compare WMATA's practices with those of leading public and private organizations. In particular, we assessed the extent to which WMATA (1) integrates its organizational goals into the capital decision-making process through structured strategic planning and needs determination processes, (2) uses an investment approach to evaluate and select capital assets, and (3) maintains budgetary control over its capital investments.

WMATA Has Created A Consolidated Capital Improvement Program

WMATA created a Capital Improvement Program (CIP) in November 2000 to consolidate its ongoing and planned capital improvement activities. This program contains three elements to address all aspects of the agency's capital investments, including (1) system rehabilitation and replacements, (2) system expansion, and (3) system access and capacity.

Under CIP, WMATA's Infrastructure Renewal Program (IRP)—created in March 1999—is designed to rehabilitate or replace WMATA's existing assets, including rail cars, buses, maintenance facilities, tracks, and other structures and systems. This program currently includes 28 projects that are estimated to cost $9.8 billion over a 25-year period from fiscal years 2001 through 2025. Also under CIP, WMATA has initiated programs to expand the original transit system and enhance passengers' access to Metrorail. For example, WMATA established what is now known as the System Expansion Program (SEP) by issuing a plan in April 1999[2] to more closely join bus services, rail services, and highway improvements to maximize the effectiveness and efficiency of the regional transportation network. SEP has three major objectives: (1) to expand fixed guideway services;[3] (2) to selectively add stations and entrances to the existing Metrorail system; and (3) to improve bus service levels and expand service areas. A fourth objective of the April 1999 plan—improving access to and capacity of the Metrorail system—is now called the System

[1] GAO/AIMD-99-32, Dec. 1998.

[2] *Transit Service Expansion Plan*, Washington Metropolitan Area Transit Authority, April 1999.

[3] Fixed guideway services use and occupy a separate right-of-way for the exclusive use of public transportation services. They include fixed rail, exclusive lanes for buses and other high-occupancy vehicles, and other services.

Access/Capacity Program, as described below. SEP currently includes four approved and proposed projects to expand various components of the rail system. WMATA has not yet estimated the full lifecycle costs for all four projects.

The third element of CIP is the System Access and Capacity Program (SAP), formerly part of the April 1999 Transit Service Expansion Plan. SAP was established as a separate program in November 2000 to provide additional rail cars and buses, parking facilities, and support activities to accommodate ridership growth. It also includes a study to determine the modifications needed to the Metrorail system's core capacity to sustain current ridership volumes and increased passenger demands resulting from future expansions. According to WMATA's proposed fiscal year 2002 budget, SAP currently includes 16 projects with a total expected cost of approximately $2.5 billion over the next 25 years.

WMATA Has Not Fully Integrated Organizational Goals Into its Capital Planning Process

In successful organizations, strategic planning guides the decision-making process for all spending, including capital spending. Strategic planning can be defined as a structured process through which an organization translates a vision and makes fundamental decisions that shape and guide what the organization is and what it does. A strategic plan defines an organization's long-term goals and objectives and the strategies for achieving those goals and objectives; annual performance plans describe in greater detail the specific processes, technologies, and types of resources, including capital, that are needed to achieve performance goals in a given year. Leading organizations use their strategic planning process to link the expected outcomes of projects, including capital projects, to the organization's overall strategic goals and objectives. Strategic planning provides the underpinnings for agencies to develop comprehensive and effective plans for all activities, including capital investments. It can also facilitate communication within the agency itself as well as between the agency and its external clients.

WMATA Has Not Fully Developed a Strategic Planning Process For its Capital Investment and Other Activities

WMATA has articulated a mission statement for the agency and an "organizational goal" of doubling transit ridership by the year 2025 to maintain the existing transit market share, enhance mobility and accessibility, improve air quality, reduce congestion, and support regional growth and travel demands. WMATA officials have also told us that they are creating a business planning process to address key areas, including (1) ridership retention and growth, (2) customer satisfaction, (3) system

quality and safety, (4) service capacity and expansion, and (5) internal capabilities and organizational development.

We support WMATA's efforts in these areas, although they have not yet resulted in plans that include the elements that leading organizations consider essential to the strategic planning process. In particular, WMATA has not developed a long-term strategic plan that defines multiyear goals and objectives for the agency and its strategies for achieving those goals, nor has it developed annual performance plans that explain the specific processes, technologies, and types of resources, including capital, that will be applied during a given year to address the performance goals and objectives. WMATA also does not have a document that links the expected outcomes of all of its capital projects—including IRP, SEP, and SAP projects—to achieving the agency's strategic goals and objectives.

WMATA Has Determined Requirements for Infrastructure Renewal, and Is Assessing Needs for System Access and Capacity, but it Has Not Fully Assessed System Expansion Needs

Our 1998 report pointed out that conducting a comprehensive needs assessment of program requirements is an important first step in an organization's capital decision-making process. A comprehensive needs assessment considers an organization's overall mission and identifies the resources needed to fulfill both immediate requirements and anticipated future needs on the basis of multiyear goals and objectives that flow from the organization's mission.

Again according to our 1998 report, to begin the needs assessment process, leading organizations assess the extent to which stated goals and objectives are aligned with the organization's mission. Multiyear goals and objectives outline how the organization intends to fulfill its mission. The goals describe, in general terms, the organization's policy intent and define its direction; objectives serve to move the organization from broad general goals to specific, quantifiable results and time-based statements of what the organization expects to accomplish. The needs assessment is results-oriented in that it determines what is needed to obtain specific outcomes. The focus placed on results drives the selection of alternative ways to fulfill a program's requirements.

When conducting a needs assessment, leading organizations assess internal and external environments. They examine the organization's primary role and purpose, the strengths and weaknesses of its current organizational structure, and its current activities and how they are accomplished. They also examine external factors that affect or influence the organization's operations, such as existing or future mandates and the expectations of its customer groups. Leading organizations also define the

period of time a needs assessment should cover and how often it is to be updated.

WMATA has performed a comprehensive assessment of capital requirements for infrastructure renewal. The foundation for the current IRP was a needs assessment completed by a contractor (Frederick R. Harris, Inc.) in March 1999 and additional assessments performed by WMATA staff to update and expand the information provided by the Harris report. The overall objectives of the assessments were to (1) develop a comprehensive understanding of the transit system's assets and their condition, (2) determine what is needed to maintain the overall condition of WMATA's infrastructure and support transit service enhancements, (3) relate system needs to available funding through a system for prioritizing projects and expenditures, and (4) support the transition of the transit system from a "start-up" to a renewal mode. Through these reviews, WMATA obtained a comprehensive inventory of its capital assets, an assessment of the condition of those assets, and recommendations for proposed projects and estimated costs for addressing the agency's infrastructure renewal requirements over a 25-year period. By comparing its resource needs information with data on its current asset capabilities, WMATA was able to identify the gaps between what it needed to maintain its current infrastructure in good repair and what resources it had available to address infrastructure needs.

To improve system access and capacity, WMATA is in the process of identifying current and needed capabilities to determine any performance gaps between them. WMATA is currently assessing the Metrorail system's core capacity[4] to determine any modifications needed to accommodate current ridership and increased passenger demand generated from future subway expansions. The core capacity assessment is scheduled to be completed by the fall of 2001. WMATA also developed its April 1999 Transit Service Expansion Plan, which identified overall planned expansion efforts given WMATA's goal of doubling ridership over the next 25 years. The plan states that some of the proposed projects fall into a time frame of 10 to 25 years, and others fall beyond a 25-year horizon.

Although the expansion plan outlines a transit vision for the Washington region and represents a positive first step in outlining expansion needs, it

[4]The "core" of the Metrorail system consists of 29 stations located in downtown Washington, D.C., and some of its immediate suburbs.

does not meet most of the requirements for a comprehensive needs assessment. For example, the plan identifies three overall goals for the role of public transit in the Washington metropolitan area and contains objectives, or elements, to implement these goals. However, the objectives do not always describe specific, quantifiable results or contain time-based statements of what the organization expects to accomplish. Also, the plan does not explain how the agency assessed needs to arrive at the specific proposed projects in the plan, and it does not outline the purpose and scope of each proposed project. Furthermore, it does not examine external factors that might affect the agency's ability to carry out the plan—such as the transit agency's lack of dedicated funding and the uncertainty caused by its dependence on annual funding decisions by numerous state, local, and federal government sources—nor does it specify how and when the plan will be updated. Finally, with regard to considering the expectation of customer groups, a representative of the Transportation Planning Board of the Metropolitan Washington Council of Governments told us that WMATA did not fully coordinate the plan with that group before it was published.

Although WMATA has not performed a comprehensive needs assessment for system expansion, it does consider regional transportation needs, costs, and benefits before deciding to support proposed expansion projects. For example, WMATA has established a "Project Development Program" to develop conceptual designs for some of the proposed projects contained in the Transit Service Expansion Plan. The goal of this program is to develop initial planning and engineering information for proposed projects that can lead to a more detailed alternatives analysis. Under this program, WMATA is considering alternative ways of providing transit services within specific corridors; developing "order of magnitude" costs and preliminary ridership estimates; and evaluating potential land use, economic development, and other issues related to specific proposed projects.

WMATA Has a Limited Role in Analyzing and Evaluating Alternatives for System Expansion

Leading organizations consider a wide range of alternatives to satisfy their needs, including noncapital alternatives, before choosing to purchase or construct a capital asset or facility. When it is determined that capital is needed, managers also consider repair and renovation of existing assets. For its system expansion program, WMATA has a limited role in identifying and evaluating alternatives before deciding to support specific expansion projects. This limited role stems from WMATA's relationship to other organizations, including (1) the Transportation Planning Board

(TPB) of the Metropolitan Washington Council of Governments and (2) the state and local jurisdictions served by WMATA. WMATA is beginning to explore—with transportation officials in Virginia, Maryland, and the District of Columbia—ways to increase its involvement in identifying and evaluating alternatives before the state and local jurisdictions select expansion projects for detailed planning, development, and implementation. We support WMATA's efforts in this area and believe that the agency could provide valuable analysis and insights through a more active role in the decision-making process for capital expansion projects.

With regard to assessing regional transportation needs and alternatives, TPB plays the key role in determining the overall transportation needs of the Washington region and identifying and evaluating alternatives (including noncapital alternatives) to meet those needs. As the regional forum for transportation planning, TPB prepares plans and programs that the federal government must approve before federal aid transportation funds can flow to the Washington region. TPB develops long- and short-range plans that include alternative transportation modes and methods in the region, including highway projects, WMATA's bus and rail services, bus services provided by local jurisdictions in the region, ridesharing and telecommuting incentives, bike and pedestrian paths, and pricing strategies to manage transportation demands. WMATA's General Manager is a member of TPB and provides input on proposed transit projects for infrastructure renewal, system expansion, and system access and capacity for TPB's approval and inclusion in its long- and short-range plans.

TPB has also prepared a draft planning document[5]—required by FTA and the Federal Highway Administration—which includes projects for identifying and evaluating transportation requirements and alternatives in the Washington, D.C., metropolitan area, including transit-related projects. The document contains projects to (1) survey workers about their travel patterns and employer-sponsored commuting programs, (2) measure traffic volumes in local jurisdictions, and (3) examine the potential for new and innovative bus services in the Washington metropolitan area.

With regard to identifying and evaluating transit expansion alternatives within specific parts of the metropolitan area known as "corridors," the state and local jurisdictions served by WMATA have the lead role in

[5]*Draft Unified Planning Work Program for Transportation Planning for the Washington Metropolitan Region*, March, 2001.

performing alternatives analyses and proposing projects for detailed planning and federal funding, as required by FTA. According to WMATA officials, the agency's decisions about which system expansion projects to support are driven by the state and local jurisdictions that sponsor the project and secure a major segment of the proposed project's funding. For example, the decision to support the project extending Metrorail's Blue Line to Largo was largely made by the representatives of Maryland's Department of Transportation, which sponsored the project, and by the members of WMATA's Board of Directors who represent Maryland jurisdictions.

WMATA has had a limited role in identifying and analyzing the corridor-level alternatives required by FTA. After the state and local jurisdictions select a specific expansion project to pursue, they take the lead in preparing the corridor-level alternatives analysis, with limited technical input, if necessary, from WMATA. These analyses range from a "baseline alternative" that may involve little or no investment to making significant capital investments in constructing or expanding a transit system. FTA requires that the alternatives analysis provide information on the benefits, costs, and impacts of alternative strategies, ultimately leading to the selection of a locally preferred alternative to the community's mobility needs. The alternatives analysis is considered complete when a locally preferred alternative is selected by local and regional decisionmakers and adopted by the metropolitan planning organization—in this case, TPB in its financially constrained long-range plan.

In addition to SEP, we also reviewed the extent to which WMATA considers alternatives on its two other capital improvement programs—IRP and SAP. With regard to IRP, there are limited opportunities for the agency to consider alternative approaches to meeting requirements, given that this program addresses the WMATA assets that are needed to maintain current transit service levels. Nonetheless, WMATA did consider alternatives for IRP in some cases. For example, WMATA has evaluated the relative costs of extending the useful life of its rail cars, buses, and escalators by performing extensive mid-life overhauls versus purchasing new vehicles or equipment at the end of the shorter expected service life. As a result, WMATA decided to perform the overhauls and extend the life of its vehicles and equipment, resulting in expected savings over time. With regard to SAP, because WMATA is in the process of assessing its requirements, it is not yet at the stage of its capital decision-making process where alternative approaches have been fully identified and evaluated. WMATA expects to identify its requirements in this area by the end of 2001.

WMATA Could Benefit From a More Formal, Disciplined Capital Decision-making Framework

An investment approach builds upon an organization's assessment of where it should invest its resources for the greatest benefit over the long-term. Establishing a decision-making framework which encourages the appropriate levels of management review and approval is a critical factor in making sound capital investment decisions. These decisions are supported by the proper financial, technical, and risk analyses. Leading organizations not only establish a framework for reviewing and approving capital decisions, they also have defined processes for ranking and selecting projects. Furthermore, they also develop long-term capital plans that are based on the long-range vision for the organization embodied in the strategic plan.

WMATA Has Not Established a Formal Internal Review and Approval Process for Making Capital Decisions

WMATA has not established a formal executive-level review group within the agency for making capital decisions, nor does it have formal procedures or a standard decision package for considering the relative merits of various capital projects each year. With regard to IRP, according to WMATA officials, all appropriate mid-level and senior managers at WMATA were involved in deciding which IRP projects should be established after the March 1999 Harris study (and subsequent updates by WMATA staff). Also, a committee of mid-level managers has been formed to review, among other things, the small number of requests for new IRP projects that are generated each year as part of the annual budget process. WMATA officials use briefing slides and other underlying analyses to reach consensus within the agency on IRP issues. In addition, WMATA's management must obtain approval for IRP-related issues and budgets from its Board of Directors, which has a formal Budget Committee that issues guidance, holds periodic meetings to review IRP and other budget issues, and documents its decisions and their rationale in formal meeting minutes.

Although WMATA officials throughout the organization provide input into the IRP decision-making process, a more formal process with standardized procedures and documentation and periodic reviews of all ongoing and proposed IRP projects would provide WMATA with a sound basis for clarifying, justifying, and documenting its capital decisions. It would also provide greater continuity within the organization if key managers move to other positions or leave the agency. In response to our review, WMATA officials told us that they plan to establish a new office within the agency that will provide oversight of all established capital projects, including their program scope, schedules, and costs. We view this as a positive step in increasing WMATA's control over its ongoing projects, and it could provide the basis for a more formal executive review and approval process

that promotes a continual evaluation of the merits of all ongoing and proposed capital projects in WMATA's Capital Improvement Program.

Within the System Expansion Program, WMATA officials told us that they play a relatively small role in proposing, evaluating, and selecting projects. According to WMATA officials, system expansion projects are first identified by local jurisdictions, which are also responsible for securing full up-front funding for their respective projects. These officials informed us that WMATA becomes involved in the projects after they have been identified and funding has been secured by the respective jurisdictions.

Although WMATA has established priorities for its system expansion program on the basis of the broad need to serve regional travel patterns and sustain the economic vitality of the region, WMATA has not taken the lead in preparing financial, technical, and risk analyses for alternative expansion projects and reviewing various proposed projects on the basis of such analyses. Leading organizations consider this framework to be a critical factor in making sound capital investment decisions. Given that the state and local jurisdictions take the lead in identifying and deciding on expansion projects, WMATA does not become involved in crucial early decisions on pursuing the most appropriate and efficient ways to expand the system and may therefore be limiting its influence on those decisions. However, WMATA could influence those decisions were it to have a more disciplined decision-making framework resulting in documented support for the alternatives it favors.

Once jurisdictions have identified and secured funding for proposed expansion projects, FTA guidelines require detailed documentation justifying the projects and following them to completion. These documents include an environmental impact statement and a long-range funding plan. However, these documents are prepared only after the respective jurisdictions have identified the projects. Established practices in capital decision-making include the preparation of such documents as part of the overall capital review and approval process, before the projects are ranked and funds are committed to the projects themselves. The documents are used as supporting documentation for decision or investment packages to justify capital project requests. WMATA does not currently prepare such decision or investment packages before deciding on system expansion projects.

WMATA Has Performed a One-Time Priority Ranking of its Infrastructure Renewal Projects But Has Not Formally Ranked or Prioritized its System Expansion or System Access Projects

Our 1998 report points out that leading organizations have defined processes for ranking and selecting projects. The selection of projects is based on preestablished criteria and a relative ranking of investment proposals. The organizations determine the right mix of projects by viewing all proposed investments and existing assets as a portfolio. They generally find it beneficial to rank projects because the number of requested projects exceeds available funding. The criteria such organizations use in ranking projects include linkage to strategic objectives, costs, benefits, risks, safety concerns, customer service significance, and political implications. In particular, it is important to clearly identify the risks of proposed projects, assess the potential impact of the risks, and develop risk mitigation strategies.

With regard to IRP, WMATA performed a one-time priority ranking of proposed projects on the basis of preestablished criteria as part of the March 1999 study conducted by Frederick Harris, Inc. These criteria included how critical the asset's function was to delivering safe and reliable service; the level of degradation associated with the asset's current condition; and other factors, such as the costs and benefits of the reinvestment, the income-producing potential of the asset, and the policy implications of various investments. According to WMATA officials, the agency has not periodically updated or reassessed the priority ranking completed in March 1999 because most of the projects in IRP have remained intact, and their priority does not change from year to year. They further noted that any minor changes required in the program from year to year are incorporated through the annual budget process. Although WMATA officials stated that the priority ranking of IRP projects does not need to be periodically reassessed over the years, leading organizations perform such periodic reassessments to help ensure that the organization is fully considering the relative merits, needs, and risks of all projects in light of changing conditions.

With regard to its projects for system expansion, access, and capacity, WMATA has not formally ranked its proposed projects on the basis of established criteria. The jurisdictions that WMATA serves identify future expansion and access projects. In April 1999, WMATA established overall priorities for system expansion projects on the basis of the need to serve regional travel patterns and sustain the regional economy; however, WMATA officials told us that individual proposed expansion projects are not in any priority order. In our view, the criteria used by WMATA are not the types of specific criteria that leading organizations use to rank projects. Leading organizations use such criteria as linkage to

organizational strategies, cost savings, market growth, and project risk to rank capital projects.

WMATA Has Not Developed a Comprehensive Long-Term Capital Plan

Leading organizations develop long-term capital plans to guide implementation of organizational goals and objectives and help decisionmakers establish priorities over the long term. Although WMATA has prepared some documents that could serve as the starting point for such a plan, it has not developed a formal long-term capital plan that identifies and justifies all of its capital projects, links those projects to long-term strategic goals and objectives, and is periodically updated to reflect changing circumstances.

With regard to IRP, the study conducted by Frederick Harris, Inc., in March 1999 contains many of the elements of a capital plan for infrastructure renewal. For example, the study proposed a set of projects after a thorough assessment of requirements. It also prioritized the proposed projects on the basis of established criteria that included how critical the asset's function was to delivering safe and reliable service and information on the asset's current condition. The study also estimated the life-cycle costs of carrying out each proposed project over a 20-year period.

Although it provides an excellent foundation for capital infrastructure renewal planning, the Harris study does not fully meet the intent of an agency capital plan because it does not contain the ultimate decisions reached on which IRP projects are to be funded. Also, WMATA is not using the proposed project ranking contained in the Harris study as the vehicle for updating its capital decisions on the IRP program annually or biennially, as would be expected with an agency capital plan. Instead, WMATA documents its IRP decisions in a series of briefing slides that it uses to highlight IRP issues and recommendations for the purpose of gaining approval within WMATA and approval from WMATA's Board of Directors.

WMATA has also not developed a long-term capital plan that defines capital asset decisions for the system expansion and access programs. In April 1999, WMATA developed its Transit Service Expansion Plan covering a 25-year horizon. Although this plan represents a positive first step in identifying potential capital projects, it does not define the agency's capital decision-making process or provide sufficient documentation on any of the proposed projects' justifications, resource requirements, risks, or priorities. Without such information, WMATA and its external

stakeholders cannot make informed choices about managing the agency's capital resources.

Finally, WMATA could benefit from preparing a consolidated long-term capital plan that incorporates all of the projects within its Capital Improvement Program for infrastructure renewal, system expansion, and system access and capacity. We recognize that WMATA's capital funding sources are earmarked for specific categories of capital projects and cannot be interchanged (e.g., use IRP funding to pay for a system expansion project or vice versa). However, establishing a consolidated capital plan would nonetheless allow the agency to weigh and balance the need to maintain its existing capital assets against the demand for new assets.

WMATA Has Used Innovative Financing Techniques but Has Not Fully Planned How it Will Address Funding Uncertainties for IRP and SAP

Officials at leading organizations that GAO studied agreed that good budgeting requires that the full costs of a project be considered when decisions are made to provide resources. Most of those organizations make a commitment to the full cost of a project up front and have developed alternative methods for maintaining budgetary control while allowing flexibility in funding. One strategy they use is to budget for and provide advance funding sufficient to complete a useful segment of a project.[6] Another strategy used by some leading organizations is to use innovative financing techniques that provide new sources of funding or new methods of financial return.

WMATA Budgets for System Expansion Projects in Useful Segments

WMATA's originally planned 103-mile Metrorail system was completed with useful segments or, as WMATA refers to them, operable segments. The last project to complete the system was designed to add 13.5 miles of heavy rail line, 9 rail stations, and 110 new heavy rail vehicles and spare parts. The project was broken down into four operable segments for which separate financial agreements were negotiated with FTA. This practice of providing separate funding for segments of Metrorail extensions was begun by WMATA's predecessor, the National Capital Transportation Agency. According to WMATA officials, funding projects in

[6]A useful segment is defined as a component that (1) provides information that allows an agency to fully plan a capital project before proceeding to full acquisition or (2) results in a useful asset for which the benefits exceed the costs even if no further funding is appropriated.

operable segments has worked well and will continue to be used to expand the Metrorail system.

WMATA Has Used Innovative Techniques to Finance and Leverage its Capital Assets

WMATA has used innovative financing techniques to fund its Capital Improvement Program and operations activities. These techniques include obtaining a loan guarantee to fund its program for infrastructure renewal, sponsoring joint development projects with other organizations, establishing a Transit Infrastructure Investment Fund (TIIF), and creating special leasing programs to leverage some of its capital assets.

The major innovative financing technique WMATA used has been to seek and receive a Transportation Infrastructure Finance and Innovation Act[7] loan guarantee from the Department of Transportation for $600 million to fund its program for infrastructure renewal. This guarantee allowed WMATA to show that it had funding available and thereby initiate and accelerate its most critical IRP projects. WMATA will soon have to seek a loan to pay for those projects, and that loan will have to be repaid with revenues from the local jurisdictions.

Through its Joint Development Program, WMATA seeks partners to foster commercial and residential projects on WMATA-owned or controlled property or on private properties adjacent to Metrorail stations for the purpose of generating revenues for WMATA and the local jurisdictions it serves. WMATA currently has 26 joint development projects earning about $6 million each year. WMATA officials project that annual revenues from these projects will eventually reach $10-15 million as additional projects are completed.

WMATA has also engaged in leasing programs that allow it to leverage some of its existing assets to generate additional revenue. For example, WMATA entered into tax-advantaged leases of its 680 rail cars in fiscal year 1999. Under this program, WMATA leased its rail cars to equity investors who obtained a tax benefit that they shared with WMATA. WMATA then simultaneously subleased the rail cars from the investors. WMATA raised $80 million in one-time proceeds from this program and is earning interest on those proceeds, resulting in additional income for the agency. In addition, WMATA has a Fiber Optic Leasing Program through

[7]This act, Subtitle E of P.L. 105-178 (1998), was enacted as part of the Transportation Equity Act for the 21st Century.

which it leases its excess capacity of fiber optics to corporations, along with the right-of-way for installation of fiber optic cables. WMATA earns about $7 million annually from this program.

Also, in August 2000, WMATA revised its ongoing TIIF program to allow the agency to retain income and proceeds from the sale or long-term lease of real estate transactions approved under its Joint Development Program. In August 2000, WMATA's Board of Directors adopted a resolution addressing, among other matters, the use of funds deposited in TIIF. The first priority is to ensure the complete funding of IRP and the anticipated need for additional buses and rail cars to match ridership growth. The second priority is to promote transit-oriented projects, such as those that increase rail system access and ridership. As of February 2001, TIIF contained about $1.6 million.

WMATA Faces Budgetary Uncertainties for IRP and SAP

WMATA has estimated that over the 25-year period from fiscal year 2001 through 2025, it will need $9.8 billion to rehabilitate and replace its existing assets under IRP and $2.5 billion to improve access to and capacity of the existing bus and rail systems under SAP. However, the agency anticipates that it will be able to fund only 88 percent, or $8.6 billion, of the IRP requirements from federal and local funding sources, resulting in a $1.2 billion budgetary shortfall over the 25-year period, or an average annual shortfall of about $50 million. In addition, the agency had obtained no funding commitments as of April 2001 to address its $2.5 billion in estimated SAP needs.

WMATA faces a number of uncertainties in obtaining the full level of funding that the agency believes it needs to meet IRP and SAP needs. First, although WMATA's Board of Directors has approved a long-range vision of funding these programs at an amount "not to exceed" WMATA's estimated amounts, the Board approves funding for only a 5-year period through an "Interjurisdictional Funding Agreement," and it firmly commits to funding IRP projects only 1 year at a time through the budget process. WMATA's current Interjurisdictional Funding Agreement expires in 2003, so local funding beyond that time is uncertain. Furthermore, WMATA's estimate of SAP requirements could significantly increase when it completes its assessment of Metrorail's core capacity in the fall of 2001. WMATA also faces the uncertainty regarding federal funding that every other transit

agency faces in light of the need for reauthorization of federal legislation[8] governing transit funding in 2003.

WMATA has not developed any plans for addressing the potential budgetary shortfalls in IRP and SAP, nor has it developed alternate scenarios of how funding reductions would be absorbed by the various asset categories under IRP or by the projects identified under SAP. WMATA officials expressed concerns that such plans and alternate scenarios could undermine their efforts to obtain what they believe is the required funding amount for the two capital programs. In our view, however, prudent management requires that the agency identify the steps needed to address any anticipated shortfalls and develop alternate plans for carrying out its capital activities, depending on the level of funding obtained from local and federal sources.

[8]The Transportation Equity Act for the 21st Century, P.L. 105-178 (1998), authorized federal funding for highway, transit, and other surface transportation programs for fiscal years 1998 through 2003. Funding for these programs will have to be reauthorized when it expires in 2003.

Appendix IV: Scope and Methodology

Our overall approach in reviewing WMATA's capital investment, operations and maintenance, and safety and security activities was to determine (1) how WMATA is organized and what policies, procedures, and practices the agency uses to carry out the activities in each of the three areas; (2) the nature and extent of any problems WMATA faces in each area, the factors that have contributed to those problems, and the actions WMATA is taking to address them; and (3) the role of other organizations in influencing WMATA's decision-making processes and providing oversight of WMATA actions in the three areas.

To perform all of our work, we reviewed pertinent documentation, including laws and regulations, and interviewed knowledgeable officials throughout WMATA to document the agency's policies, programs, and practices for performing its operations and maintenance, safety and security, and capital investment activities and to obtain views on the challenges the agency faces in each of those areas. We also met with officials from WMATA's Board of Directors, the Transportation Planning Board of the Metropolitan Washington Council of Governments, FTA, and the American Public Transportation Association to determine their respective roles in influencing WMATA's decision-making processes and providing oversight of WMATA and to obtain their views on key challenges facing the agency. We conducted our work from September 2000 through June 2001 in accordance with generally accepted government auditing standards.

In reviewing Metrorail's operations and maintenance activities, we interviewed WMATA's Deputy General Manager of Operations, Chief Operating Officer of Rail Service, and other officials responsible for planning, directing, and assessing Metrorail's operations. We also met with WMATA officials responsible for Metrorail's fleet and facilities maintenance activities. We reviewed Metrorail's fleet management plan and its operating budget, as well as other key documents related to its operating processes and procedures. In addition, we observed several meetings of the budget and operations committees of WMATA's Board of Directors, in which issues pertaining to the proposed fiscal year 2002 budget and Metrorail's ongoing and planned operations were addressed.

In reviewing WMATA's safety and security programs, we interviewed key safety and security staff in WMATA and its oversight agencies and reviewed plans and documents provided to us. In doing our work, we relied upon WMATA's safety and security statistics. We did not attempt to compare the safety or security of WMATA with other transit systems. Currently, FTA's National Transit Database is the only comprehensive

source of domestic safety and security transit data. According to an FTA report issued in May 2000, however, the database is not adequately comprehensive, timely, or accurate to appropriately assess the state of industrywide or agency-level safety and security. FTA is in the process of redesigning its National Transit Database to enhance its reporting of safety and other data on transit agencies.

In reviewing WMATA's capital investment activities, we compared WMATA's practices to those of leading public and private sector organizations. In doing so, we assessed the extent to which WMATA (1) integrates its organizational goals into the capital decision-making process, (2) uses an investment approach to evaluate and select capital assets, and (3) maintains budgetary control over its capital investments. Our criteria for established best practices was drawn from GAO's 1998 Executive Guide: Leading Practices in Capital Decision-Making.[1]

[1]GAO/AIMD-99-32, December 1998.

Appendix V: Comments From WMATA

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

June 12, 2001

Ms. Jayetta Hecker
Director, Physical Infrastructure Issues
General Accounting Office
Washington, DC

Dear Ms. Hecker:

Thank you for allowing the Washington Metropolitan Area Transit Authority (WMATA) the opportunity to respond formally to the General Accounting Office (GAO) report to Congress on WMATA, entitled: Many Management Successes at WMATA, but Capital Planning Could Be Enhanced. We also would like to take this opportunity to commend the GAO for the thorough and highly professional manner in which the review of WMATA was conducted. We are pleased to have worked closely with the GAO on this effort.

Generally speaking, WMATA is in agreement with the findings and conclusions of the GAO's report, and plans to implement the four recommendations of your report as follows:

1. We will aggressively pursue the development of a long-term strategic plan and annual performance plans. The last time we developed a formal strategic plan was in 1990, and we agree that it is time to prepare a new plan. We will utilize the various building blocks that WMATA has already developed as a framework for this plan, and we will be utilizing the WMATA Board's committee structure to establish the form and content of the plan.

2. We will develop a refinement to our existing long-term capital plan that adds a more formalized and more strategic process to support the basis of staff's recommendations for the specific projects that are contained in our consolidated Capital Improvement Program (Infrastructure Renewal Program, System Access and Capacity Program, and System Expansion Program). We do point out that our Infrastructure Renewal Program was developed based upon an extremely comprehensive review performed by an independent third party, and that our existing CIP was subjected to an exhaustive review last summer and fall by our Board of Directors, and by the staffs of our State and local funding agencies under the auspices of the Transportation Planning Board (TPB). We do not agree

Washington Metropolitan Area Transit Authority

600 Fifth Street, NW
Washington, DC 20001
202/962-1234

By Metrorail:
Judiciary Square—Red Line
Gallery Place-Chinatown—Red, Green and Yellow Lines
By Metrobus:
Routes D1, D3, D6, P6, 70, 71, 80, X2

A District of Columbia, Maryland and Virginia Transit Partnership

See comment 1.

with the subpart of the second recommendation regarding alternative funding strategies and project outcomes. An explanation of our reasoning is described later in this response.

3. We will establish a more standardized and formalized approach to our internal management processes related to capital decision making. To that end, we are in the process of establishing a new organizational unit, the Office of Capital Program Oversight.

4. We will continue to work with the State and local jurisdictions and the Transportation Planning Board to take a more active role in evaluating and proposing expansion projects. We have already provided notice to these organizations on how WMATA should play a more proactive role in the planning process for transit components of corridor plans and Major Investment Studies, and we will continue to follow up on this issue.

Our comments on the three questions addressed in your report are as follows:

(1) What challenges does WMATA face in operating and maintaining its Metrorail system?

We are pleased that the GAO has determined that WMATA is addressing problems with aging Metrorail facilities and equipment through our infrastructure renewal program (IRP), and that WMATA has made significant progress in carrying out many of the emergency rail rehabilitation program's (ERRP) improvement projects. As we previously indicated, offloads decreased on average from 9 per weekday during the spring "Cherry Blossom Season" in 1999 to 4.8 per weekday in 2001, in spite of significant increases in weekday ridership (nearly 100,000 more passenger trips per weekday). This improvement in our offload statistics is directly attributable to the ERRP and the other management actions.

We also appreciate the GAO recognition that our rail cost recovery ratio, which is one measure of financial performance, represents one of the highest of any rail system in the nation. As the second largest rail system in the United States, we are particularly proud of that accomplishment.

The significant challenge to WMATA in operating its Metrorail system is dealing with aging equipment and infrastructure and ever-increasing ridership, which WMATA has labeled as "aging pains" and "growing pains." We share your conclusion that in the operations and maintenance area, WMATA is in some ways a "victim" of its own success in that our challenges have largely resulted from ever increasing passenger ridership growth, along with inevitable aging of our equipment and infrastructure. The challenge facing WMATA today will be to secure

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necessary funding to replace existing equipment and rehabilitate facilities; to purchase additional buses, rail cars and support facilities to ease overcrowding and support continued ridership growth; and to selectively expand our system. Beyond these requirements, WMATA has begun a comprehensive core capacity study to determine what steps must be taken to ensure that the Metrorail system is capable of handling future ridership growth, a regional bus study to determine bus needs and enhanced system access requirements, and a regional mobility initiative to examine parking expansion and other access requirements. These studies are expected to be completed by the end of this calendar year. The outcomes of these studies will be important in order to maintain the critical role that transit plays in supporting the health and vitality of our growing metropolitan area.

(2) *What efforts has WMATA made to establish and monitor safety and security within the transit system?*

We appreciate GAO's acknowledgment that WMATA's safety program has made significant improvement since 1997, and we believe that our security program has long been a model for transit policing. The safety and security functions at WMATA are separate organizations, but both are governed by program plans which, as the GAO points out, serve as blueprints for providing safety and security for WMATA's customers and employees.

We concur with the GAO observation that WMATA has established practices to monitor safety conditions including the implementation of established safety and fire protection criteria, mechanisms for identifying and assessing safety hazards, and methods for conducting investigations of accidents and incidents. As the GAO points out, according to the Federal Transit Administration (FTA) and the American Public Transportation Association (APTA), WMATA's safety program is considered "very good" compared to the safety programs at other transit agencies.

In the aftermath of the April 2000 tunnel fire, WMATA asked APTA to conduct a comprehensive peer review of WMATA's emergency procedures for responding to smoke and fire incidents in the Metro system. The peer review and the internal WMATA review resulted in 32 recommendations, 30 of which have already been implemented, and the other 2 of which are in the process of being addressed. These have resulted in a significant improvement in Metro's response to fire and smoke conditions, and in our coordination with other local agencies.

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We also concur with the GAO observation that WMATA's Police Department's security plan takes a very proactive approach to security. As the GAO observed, many proactive security measures have been in place since the beginning of the transit system. Station lighting, recessed walls, closed circuit televisions and alarms are examples of such design features. WMATA's much heralded "zero tolerance" philosophy on crime and emphasis on prevention of crime are important parts of our security philosophy. In April 1997, FTA conducted an on-site security audit of WMATA. As the GAO report indicates, FTA officials stated that they were impressed with efforts taken by Metro Transit Police and the operating and maintenance departments to comply with FTA's security requirements. In addition, FTA found that the comprehensive nature of WMATA's security program demonstrates a high level of attention to passenger and employee security. We believe WMATA has one of the best security programs and Police Departments in the Transit Industry.

(3) *To what extent does WMATA follow established best practices in planning, selecting, and budgeting for its capital investments?*

The GAO observes that WMATA is addressing its major capital requirements, but could benefit from a more formal capital planning process. We concur with the observation that we do, in fact, carry out such a decision process, but that we could benefit from a more formalized and documented process. To that end WMATA will be establishing a new organizational entity, the Office of Capital Program Oversight. This new organization will be responsible for developing more formal policies and procedures to specifically respond to the capital decision-making principles and practices identified by the GAO, including integration of organizational goals into the capital decision making process through structured strategic planning and needs determination processes, use of an investment approach to evaluate and select capital assets, and maintenance of budgetary controls over its capital investments.

See comment 1.

The GAO also observes that WMATA has not developed contingency plans for addressing potential out-year shortfalls in the infrastructure renewal and system capacity programs, and has not developed programs which accommodate such funding reductions. We have identified the minimum potential of a $3.7 billion capital funding shortfall (exclusive of funding for new extensions) over 25 years for our funding agencies in order to alert them of the importance of providing for those needs at an early point in their own long-term program development. We should clarify that WMATA does adopt a one-year capital program which is matched precisely against the funding amounts available from the federal, local, and state governments. In addition, we adopt a

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constrained six-year program for planning purposes, which reflects a programming of projects against a realistic assessment of funds reasonably expected to be available. Beyond that period, however, the 25 year capital program is a statement of need.

If WMATA had a dedicated or assured source of funding, we would agree totally with the GAO suggestion that a program should be developed which matches the projected funding available, with appropriate scenarios to accommodate any potential reduction in such funding. As GAO has observed, however, that is not the case for our agency. The funding for our programs is generated *in response to*, rather than independent of, our statement of needs. Thus, to publish a program at a level lower than that which we believe to be essential to maintaining safe, reliable, and adequate service would encourage our funding agencies to provide a reduced level of available resources, even if we were to document the effects of such a reduced investment. In effect, our concern is that it would become a self-fulfilling prophecy. We believe that the interests of the traveling public are best served by creating a funding-constrained six-year plan, as we do, and establishing a realistic needs statement for the remainder of the 25-year projection. We recognize that the ability of WMATA and the Washington metropolitan region to identify, prioritize and fund capital projects will determine the agency's ability to protect the substantial public investment in the Metro system.

As stated earlier, WMATA staff was pleased to have worked with the GAO audit team during this effort. We look forward to continuing to work with the GAO team as they follow-up on the implementation status of the report's recommendations. The recommendations in the report will assist WMATA as we strive to improve upon our well-earned reputation for excellence, and as we pursue our mission of providing mobility to the citizens of the region and visitors from around the nation and the world.

Sincerely,

Richard A. White
General Manager

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The following are GAO's comments on WMATA's letter dated June 12, 2001.

GAO comments

1. WMATA did not agree with the subpart of our second recommendation that calls for developing alternative capital funding strategies and project outcomes, depending on the availability of funding from federal, state, and local sources. WMATA states that to develop such contingency plans would encourage its funding agencies to reduce WMATA's resources, thereby becoming a "self-fulfilling prophecy". We continue to believe, however, that prudent management requires WMATA to plan for budgetary shortfalls that the agency has publicly acknowledged are a major issue in protecting the public's investment in WMATA's transit system. We are particularly concerned about the near-term unfunded amounts for WMATA's System Access and Capacity Program, which could significantly increase when WMATA completes its assessment of Metrorail's core capacity in the fall of 2001. The TPB has also expressed concerns about the adequacy of WMATA's capital funding, noting that the funding available from the state and local jurisdictions is less than that requested by WMATA. Therefore, we did not change the report's recommendation.

Appendix VI: GAO Contacts And Staff Acknowledgements

GAO Contacts

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Acknowledgments

In addition to the individuals named above, John E. Bagnulo, Christine E. Bonham, Carlos E. Hazera, Michael E. Horton, Susan Michal Smith, Carol A. Ruchala, and Maria J. Santos made key contributions to this report.

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