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MASS TRANSIT

Project Management Oversight Benefits and Future Funding Requirements

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Resources, Community, and
Economic Development Division

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September 15, 2000

The Honorable Phil Gramm
Chairman
Committee on Banking, Housing, and Urban Affairs
United States Senate

The Honorable Richard C. Shelby
Chairman
Subcommittee on Transportation and Related Agencies
Committee on Appropriations
United States Senate

The Honorable Frank R. Wolf
Chairman
Subcommittee on Transportation and Related Agencies
Committee on Appropriations
House of Representatives

To meet the nation's transportation needs, many states, cities, and localities are building or planning mass transit projects to replace aging infrastructure or add new capacity. These transit projects are very costly and require large investments of public resources. Much of the funding is made available through grants from the Department of Transportation's Federal Transit Administration (FTA). These projects can be technically challenging and can take years to construct. In the early 1980s, several federally funded transit projects experienced major problems with the quality of construction, cost overruns, and missed milestones. To help lessen the risk and safeguard the federal investment in transit projects, the Congress authorized FTA's project management oversight program in 1987. Today, FTA and its project management oversight contractors monitor over 100 major capital projects—generally defined by FTA as including those expected to cost more than $100 million—which are collectively expected to cost about $47.5 billion.

Because of your continuing concern about the federal investment in projects that have experienced cost increases and schedule delays and your interest in maximizing the impact of FTA's investments, you asked us to review FTA's oversight of major capital projects. As agreed with your offices, this report describes (1) how FTA oversees major capital projects,

(2) how financial capacity assessments are used, (3) what types of benefits to grantees and FTA have resulted from FTA's project oversight activities, and (4) how these oversight activities are funded.

Results in Brief

The project management oversight program is designed primarily to help ensure that grantees constructing major capital projects have the qualified staff and procedures to successfully build the projects according to accepted engineering principles. To implement this program, FTA enters into contracts with competitively selected engineering firms, which serve as an extension of its limited technical staff. While a project is being designed, the oversight contractor reviews the grantee's plan for managing and constructing the project. This plan is the key document that the oversight contractor and FTA use to determine whether the grantee has the technical capability to complete the project. Once FTA approves the plan, the oversight contractor monitors the project to determine whether it is progressing on time, within budget, and according to approved plans and specifications.

As a result of FTA's experiences with the Los Angeles subway project in the mid-1990s, in 1998, FTA expanded its oversight efforts to include a formal and rigorous assessment of a grantee's financial capacity to build and operate a new project and of the financial impact of that project on the existing transit system. Such an assessment includes reviewing the grantee's current financial health as well as its ability to meet future capital and operating costs. These assessments, performed by independent accounting firms, are now completed before FTA commits funds for construction and are updated as needed until projects are completed.

FTA's project management oversight program has resulted in benefits for both grantees and FTA. Transit agencies have commended the program and cited numerous examples of how the FTA contractors have improved project management, especially quality controls. For example, according to the grantee constructing the San Jose light-rail system, FTA's oversight contractor provided guidance and recommendations in the grantee's development of a sound quality assurance program, which resulted in fewer problems and less "rework" than occurred on previous construction projects. The project management oversight contractors routinely provide FTA with an early warning of issues and problems that can lead to schedule delays and increased costs and have helped FTA identify actions to mitigate the impact of these problems. For example, the oversight contractor on the Tren Urbano project in Puerto Rico, after identifying cost increases and

schedule delays, conducted a thorough analysis of the project's cost and recommended that the grantee take specific actions to help control the cost. Furthermore, FTA's increased use of financial capacity assessments before federal funds are committed has helped protect the federal investment in major capital projects. Finally, by identifying recurring problems across projects, FTA's project management oversight program has helped the Congress and FTA recognize the need to revise and expand the criteria used to review and fund proposed projects.

FTA's oversight activities are supported by a statutorily limited set-aside of the funds made available annually for certain transit programs. In the past, this set-aside has been more than sufficient to cover the costs of FTA's oversight contractors. FTA officials now believe that this amount will not be sufficient to allow them to continue their current level of oversight activity, mainly because the number of projects in one of FTA's capital investment programs—"new starts"—has increased by almost 90 percent since 1996 and will continue to grow. FTA believes that starting in fiscal year 2002, it will have to cut back its level of oversight activities on some projects. This cutback could occur at a time when many of the proposed new transit projects are sponsored by transit agencies that have little or no experience in planning, designing, and constructing major transit projects. FTA officials could not tell us what level of shortfall would occur after fiscal year 2002 or exactly how it would address any shortfalls.

For these reasons, we are recommending that the Secretary of Transportation direct the Administrator of FTA to (1) determine the amount of funds needed to oversee the growing number of transit projects that will require oversight, the level of funding that likely will be available, and any resultant shortfall in funds; (2) identify options to cover any projected shortfalls; and (3) identify steps to respond to any shortfalls as they occur. We are recommending that the Secretary of Transportation provide the Congress with this information for consideration.

Background

FTA oversees major capital projects primarily through its project management oversight (PMO) program. FTA initiated this program after several of its "new starts" projects encountered quality, cost, and schedule problems in the early to mid-1980s.[1] According to FTA officials, these problems were attributable to the process that transit grantees followed in developing their projects. At that time, grantees focused their efforts on designing projects and obtaining funding and focused less on developing a practical plan for managing and constructing a project effectively once funding was received.

To safeguard the federal investment, the Surface Transportation and Uniform Relocation Assistance Act of 1987 authorized the PMO program and established a funding mechanism for oversight of major capital projects. As a condition of federal financial assistance, grantees are required to develop and implement project management plans that address quality, scheduling, budget, and other issues. This requirement is intended to focus grantees on implementation issues early in a project's life.[2] Under the act and FTA's implementing regulations, project management oversight typically begins during the preliminary engineering (early design) stage of a project. The PMO program is financed with a statutorily limited set-aside of funds made available annually for specified programs; with this funding, FTA retains engineering firms to review, approve, and monitor the project management plans. Currently, FTA's PMO program is monitoring the construction of over 100 major capital projects collectively estimated to cost about $47.5 billion. Most of these projects are funded by grants awarded under FTA's capital investment programs—new starts, rail modernization, and bus capitalization. (For a complete listing of these projects, see app. I.)

[1]"New starts" is one of three capital investment programs for which funding is provided under section 5309 of title 49, U.S. Code. The "new starts" program funds up to 80 percent of new transit systems that use separate and exclusive rights-of-way as well as extensions to existing systems.

[2]FTA is not charged with hands-on responsibilities—that is, with the inspection and acceptance of construction work—for federally funded projects. These responsibilities rest with the grantees. As builder and owner, each grantee is responsible for all aspects of a project's development and implementation. The grantees carry out their responsibilities through a combination of their own staffs, engineering firms, and construction management firms.

The 1990 Department of Transportation Appropriations Act amended the PMO funding provision to authorize FTA to use oversight funds to review the safety, procurement, management, and financial management practices of transit grantees. FTA's safety, procurement, and management reviews essentially focus on grantees' compliance with the laws governing such issues as safety, drug and alcohol testing, procurement procedures, and civil rights protections. Financial management oversight generally entails reviews of grantees' financial management systems. In recent years, FTA has expanded its oversight activities to include assessments of grantees' financial capacity to carry out new starts projects. In fiscal year 1999, FTA spent about $30.6 million on all of its oversight activities, including about $22 million for project management and financial management oversight activities.

FTA Oversees Major Capital Projects Through Its PMO Program

FTA's PMO program is process-oriented; it is designed to help ensure that grantees constructing major transit projects have the technical capability to carry out the projects' design and construction according to accepted engineering principles. Under this program, FTA enters into contracts with competitively selected engineering firms to review the development and implementation of grantees' project management plans. These oversight contractors also monitor projects to determine if they are progressing on time, within budget, and according to approved plans and specifications. FTA requires, at a minimum, monthly reports of the oversight contractors' findings, together with recommendations for any corrective actions that may be needed.

Selection, Assignment, and Management of PMO Contractors

By competitive procurement, FTA retains a number of qualified engineering firms to serve as an extension of the agency's limited technical staff and to carry out oversight of major capital projects. These firms provide technical expertise that, according to FTA, would be difficult, if not impossible, for the agency to retain in-house. Typically, each PMO contract contains the same statement of work and authorizes 5 years and 90,000 hours of work.[3] FTA last awarded PMO contracts in 1998 and 1999. These contracts will expire in 2003 and 2004 and are expected to cost a total of about $174.4

[3]These contracts are level-of-effort contracts and provide flexibility by allowing adjustments in the hours authorized because of changed conditions. Examples of changed conditions are grantees' delays in preparing project management plans and unexpected occurrences, such as the default of a construction contractor.

million. Appendix II lists the current PMO contractors. Staff in FTA's 10 regional offices—called *work order managers*—are responsible for ensuring that the contracts are prudently managed.

Generally, FTA assigns a PMO contractor to a specific transit project after that project advances to the preliminary engineering stage of development.[4] In assigning contractors, FTA makes a considerable effort to ensure that no real or apparent conflict of interest exists between a contractor and a grantee's project. Prior to beginning work on a specific project, the contractor participates in a kickoff meeting with the grantee, FTA's Office of Engineering, and the FTA regional office responsible for the project. This meeting serves to explain the objectives and process of the PMO program and to secure the commitment of the grantee to cooperate with the PMO contractor and provide any necessary information. Typically, a PMO contractor will stay assigned to the project as it progresses through the final design and construction phase and the tests of its operation.

To maximize the effectiveness of its PMO contractors, FTA has developed two approaches to monitoring transit projects—the "team" approach and the "resident manager" approach. Under the team approach, used on the majority of its contractor assignments, a group of specialists review the assigned project on a periodic basis.[5] The on-site resident manager approach is used on large and complex projects for which full-time services are justifiable from a cost-benefit point of view. The resident manager approach is likely to be used in large metropolitan areas where a single PMO contractor is responsible for monitoring several major capital projects implemented by local transportation agencies. For example, in the New York City metropolitan area, the on-site resident manager monitors 11 major capital projects currently being constructed by three different grantees.

[4]Projects typically progress from the initial planning and preliminary engineering phases to the final design and construction phases.

[5]FTA's project oversight contractors must demonstrate, at a minimum, that they employ or are able to retain professional persons licensed, registered, or certified as civil engineers, structural engineers, electrical or traction power engineers, mechanical or vehicle engineers, signals (railroad or transit) engineers, quality assurance engineers, and project-scheduling and value engineers.

PMO Contractors' Review and Monitoring Activities

The focus of FTA's PMO contractors is to monitor the grantees' processes for ensuring that projects are adequately staffed and properly managed in accordance with accepted engineering principles and requirements. FTA's PMO contractors are charged with two fundamental responsibilities in examining a grantee's technical capability: (1) reviewing the grantee's project management plan and (2) monitoring the plan's implementation. The contractor reviews the plan—which must be prepared and updated according to FTA's requirements—to establish whether the grantee has, or will have, a reasonable process in place for successfully completing a major capital project. Once FTA approves the plan, the contractor then monitors the grantee's use of the plan and its effect on the project's implementation. Monitoring takes place throughout construction and during the test phase of operations. FTA requires the PMO contractors to report their findings at least monthly not only to keep the agency fully informed of the grantees' performance but also to convey to the grantees the contractors' observations, concerns, and recommendations for corrective action, if any. In addition to assessing a grantee's technical capability, FTA also requires the PMO contractor to look at the reasonableness of a project's overall scope, cost, and schedule.

A grantee's project management plan must include a quality assurance and control program for the project's design and construction. FTA believes that to a large degree, the success of a major capital project depends on having a sound quality assurance and control program that both the grantee and the grantee's design and construction contractors must follow. FTA requires the PMO contractor to make sure that the program properly addresses such quality issues as materials testing and that a suitable staffing plan for the program exists. The agency also requires the PMO contractor to verify that the grantee is adequately implementing the program. PMO contractors also review other elements of projects, such as safety.

FTA's Oversight Program Has Evolved to Include Financial Capacity Assessments

In recent years, FTA has recognized the need for changes in how it oversees major capital investments in order to mitigate the financial risks associated with these projects. FTA's approach toward the financial monitoring of grantees building major capital projects has evolved from performing one-time financial evaluations before committing federal funds to conducting baseline assessments of grantees' financial capacity to construct and operate new projects followed by periodic monitoring as the projects progress.

FTA's experiences with the Los Angeles subway project in large measure precipitated changes in its financial monitoring of major capital projects. In 1997, management and financial difficulties with the Los Angeles subway project caused FTA to require the grantee to prepare a recovery plan. FTA's review of that plan found that the grantee's revenues projected in the plan would be much lower than expected and insufficient to complete the project and operate the rest of the transportation system. Subsequently, the grantee had to suspend the construction of two planned extensions to the subway for which FTA had already committed funds through a full funding grant agreement.[6] Since then, FTA has sought to develop a comprehensive, structured program for assessing the financial capacity of grantees to build and operate major capital projects to help ensure that a repeat of the Los Angeles subway project situation does not occur.

In summer 1998, FTA began taking steps to elevate the importance of financial capacity assessments as a tool for overseeing the construction of major capital projects. FTA assigned five financial management oversight consultants the responsibility of conducting financial capacity assessments on the 13 projects that had full funding grant agreements at the time.[7] Priority was given to the projects that had experienced cost increases and schedule delays. In performing these assessments, the financial consultants focused on the grantees' capacity to complete their projects according to the budget, schedule, and commitments in the full funding grant agreements or as proposed in either a recovery or finance plan. Beginning in 1999, as a matter of policy, FTA began performing these assessments on all projects recommended for full funding grant agreements.

A financial capacity assessment includes a review of a grantee's current financial condition as well as the grantee's ability to meet future capital and operating costs. In assessing financial condition, the financial consultants consider historical trends and current financial information contained in the grantees' audited financial statements and other relevant reports. In assessing financial capacity, the consultants consider the nature of funds pledged to support the grantees' operating deficits and capital programs

[6]A full funding grant agreement establishes the terms and conditions of federal financial participation in the design and construction of certain major transit projects.

[7]These consultants are independent public accounting firms that FTA was using to implement its financial management oversight program. Combined, the current 5-year contracts, which expire in 2003, provide for 125,000 hours of work at a cost of about $13.7 million.

while considering the grantees' capital, operating, and maintenance costs. These assessments are also designed to identify issues that could affect the projects in the future.

The specific scope and objective of each financial capacity assessment varies depending on the size of the transit system being considered and the scale of the proposed capital investment. FTA has developed guidance for the financial consultants to use in conducting these assessments. At the conclusion of the assessment, the consultant prepares a baseline report indicating whether the grantee has the financial capacity to construct and operate the project while maintaining its existing transit system. This baseline report may identify such deficiencies as the grantee's having no means to meet unfunded operating deficits or unexpected construction costs. A baseline report may also identify issues needing periodic monitoring by FTA or corrective action by the grantee, such as the establishment of a contingency fund.

As of August 2000, FTA had completed financial capacity assessments for 15 projects that have full funding grant agreements and that are still under construction. In addition, assessments have been completed or scheduled for another 12 projects recommended for grant agreements.

Transit Agencies and FTA Have Benefited From Project Management Oversight and Financial Capacity Assessments

FTA's PMO program and related financial capacity assessments have benefited both the grantees and FTA. As a result of the PMO program, grantees have improved their controls over project cost, schedule, quality, and safety. At the same time, FTA has gained a better understanding of the issues surrounding complex construction projects and an increased awareness of potential problems that could lead to schedule delays or cost increases. Even when problems on projects have been encountered, their detection at an early stage by the PMO contractors has helped FTA and the grantees to mitigate their impact. FTA points out that only 3 of the 15 projects with current grant agreements have had significant cost and schedule concerns. In addition, FTA's recent use of financial capacity assessments has provided FTA with greater assurance that potential grantees are ready to construct their projects and have the financial capacity to complete them, thereby protecting the federal investment in large transit projects.

PMO Program Has Resulted in a Wide Range of Benefits for Grantees

The PMO program has resulted in a wide range of benefits for grantees implementing major capital projects, including improved project controls and cost savings. Grantees have commended the program and its impact on project implementation. The grantees believe that their projects have benefited from the expertise, experience, and independent perspective that PMO contractors bring to their management teams. Furthermore, several grantees told us that the PMO contractors' reports and recommendations can provide the mechanism for their project managers to obtain access to upper management, enabling them to acquire the resources to implement improved project controls.

The PMO contractors have recommended that the grantees take specific actions to strengthen their project controls. In turn, the grantees have responded to many of these recommendations by improving their project controls in such areas as quality assurance and quality control (QA/QC) and safety. Several examples of project control improvements follow:

- *Developed Sound QA/QC Program*. While reviewing the project management plan for the San Jose, California, Tasman West light-rail project, the PMO contractor provided the grantee with guidance and recommendations for developing its QA/QC plan. For example, the PMO contractor recommended that the grantee require its construction contractors to hire on-site quality assurance managers. The grantee believes that the assistance provided by the PMO contractor was critical to its development of a sound QA/QC plan, which resulted in fewer noncompliance reports and less rework than on previous construction projects.

- *Developed Comprehensive Project Management Plan*. Concerned about the lack of integration among three interrelated projects being constructed by the San Francisco Municipal Railway, the PMO contractor recommended that the grantee appoint an overall coordinator and develop a comprehensive project management plan that covered all projects. FTA and the PMO contractor believe that the implementation of this recommendation has resulted in a more coordinated effort and helped improve the implementation of these projects. For example, the grantee's development of a standardized format for reporting financial, budget, and schedule information has resulted in improved forecasting for these projects.

- *Implemented Uniformity in QA/QC Program*. The grantee, New York City Transit—which operates the largest public transit system in the

United States—is currently using federal funds to implement six projects worth nearly $5 billion that are being monitored through the PMO program. The grantee had an established QA/QC program; nevertheless, in response to the PMO contractor's recommendations, the grantee took numerous actions designed to improve the uniform implementation of the program. For example, at the urging of FTA and the PMO contractor, the grantee hired a full-time quality director to promote quality assurance throughout the agency's many departments. According to the PMO contractor, initiatives undertaken by the quality director have helped establish quality assurance as an important part of the agency's culture and have resulted in specific performance improvements, such as the reduction of average contract closeout time from 2 years to 6 months.

- *Expanded Safety Program.* To improve construction safety, the PMO contractor assigned to the Tren Urbano project in Puerto Rico recommended that the grantee expand its safety department. In response, the grantee hired additional staff, including a safety manager qualified in the transit industry. The grantee also began conducting surprise safety inspections at the various construction sites. The grantee believes that these actions have resulted in a much safer project and have helped reduce injuries and save lives. For example, in September 1999, the grantee shut down a construction site until safety violations were corrected. Two months later, a worker escaped critical injury after falling off an elevated structure because he was wearing a safety harness. Prior to the shutdown, the grantee found that some workers were not wearing safety harnesses.

- *Enhanced Document Control System.* To help avoid costly rework of construction built to outdated specifications, the PMO contractor assigned to the Tren Urbano project recommended that the grantee improve its document control system. In monitoring the project, the PMO contractor found that the grantee's system was ineffective in ensuring that the most current design drawings were distributed to the construction managers in the field. In one case, a single drawing number had been assigned to three different documents. To decrease its vulnerability to the cost increases that could result from such a mistake, the grantee purchased and implemented a new document control system. This new system will allow the grantee to better track documents and help protect against claims and future litigation. The PMO contractor's spot checks have confirmed that this system is working.

While the benefits of the PMO program are many and varied, they are not often quantifiable in terms of dollars saved. However, the following instances of actual or potential savings have resulted from the program. Where these savings have occurred, they were usually the result of PMO contractors' recommending the use of construction management techniques that were successfully used on other projects.

- On the South Boston Piers transitway project, the PMO contractor recommended that the grantee use "wrap-up" insurance rather than the traditional method of insuring the project under which all parties involved in the project would obtain insurance independently.[8] By selecting wrap-up insurance, the grantee was able to achieve an initial savings of $14.1 million and potential total savings of $21.1 million.

- On the Bay Area Rapid Transit Authority (BART) airport extension project in San Francisco, the grantee avoided spending additional funds by following the PMO contractor's recommendation to obtain written approval from the local fire marshal before beginning construction. At the time, the grantee believed that it had reached an agreement with the local fire marshal on the remedies needed to comply with fire code standards and was ready to begin making the necessary design and construction changes. On the basis of its prior experience with the fire marshal on a similar project, the PMO contractor recommended that the grantee not rely on a verbal agreement. That proved to be prudent advice because the fire marshal was reluctant to approve the remedies without further analysis. As a result, the grantee developed additional analysis to demonstrate the adequacy of the remedies without undertaking potentially unnecessary and costly construction work.

- On the San Jose Tasman West light-rail project, the PMO contractor recommended that the grantee combine several of its construction contracts. Originally, the grantee had planned for four construction contracts with a separate contract for systems and track work. The PMO contractor had seen the financial benefits of combining contracts on similar projects throughout the country and advised the grantee accordingly. In response, the grantee reduced the number of contracts

[8]Under wrap-up insurance programs, project owners (such as state departments of transportation and transit agencies) purchase insurance to cover all the parties involved in a project—the owner, the construction manager, the general contractor, and the subcontractors.

by two and included the track work as part of these contracts. According to the grantee, this action reduced the cost of the contracts by $3 million, or 5 percent, by providing economies of scale and reducing administrative costs and claims that might have occurred from a separate contract for the track work.

To increase the cost-effectiveness of transit capital investments through a sharing of PMO experiences and lessons learned on major projects, FTA has compiled a file of 36 "lessons learned" and expects to accumulate more in the future. The program was developed with the assistance of the PMO contractors, grantees, and FTA's regional engineers. The lessons provide information that ranges from methods used to solve complex construction problems to means of improving grantees' design and construction management practices. For example, one such lesson describes a waterproofing method used successfully in tunneling through rock or soft ground in Europe and the United States. At the recommendation of the PMO contractor assigned to the South Boston Piers transitway project, this method is being used to minimize the potential for water infiltration into the transitway tunnel. As a result of this reduced likelihood of water infiltration, the grantee expects reduced operating and maintenance costs on this project. Another lesson discusses the use of an automated system that has wide application for effectively controlling the complex and time-consuming process of managing design and construction changes made in the field. Developed by the Los Angeles County Metropolitan Transportation Authority, the system is described as one that can be readily adapted to meet the requirements of individual transit agencies.

PMO Program Identifies and Helps Address Cost and Schedule Problems

The PMO program has also been instrumental in providing FTA with a better understanding of the issues surrounding complex construction projects and an increased awareness of potential problems that could lead to schedule delays or cost increases. PMO contractors routinely alert FTA to issues and problems that can lead to schedule delays and increased costs and help FTA identify actions to mitigate the impact of these problems. The PMO contractors assigned to three complex projects—South Boston Piers, Tren Urbano, and BART airport extension—identified significant cost increases and schedule delays early in construction and continue to monitor these issues. In doing so, the PMO contractors have helped FTA and the grantees develop strategies to address cost and schedule problems and avoid situations in which a project must be suspended, as occurred with the Los Angeles subway project. Furthermore, FTA's use of financial capacity assessments on these projects has helped lessen FTA's concern that the grantees will not be able to complete these projects without affecting their existing transit systems.[9]

Oversight efforts on the South Boston Piers transitway project, which has some joint construction with the Central Artery/Tunnel project in Boston, illustrate the role PMO contractors have played in identifying and helping resolve budget and schedule problems on major transit projects. The PMO contractor assigned to the transitway project first alerted FTA about the potential for schedule delays in 1996, when the transitway was still in the early stages of final design and construction. In early 1997, the PMO contractor reported to FTA that because of a number of factors, such as utility design coordination problems and differing site conditions on the joint construction contracts with the Central Artery project, the transitway project could open 2 years behind schedule and cost as much as $542 million—$129 million more than the original estimate approved in the 1994 grant agreement. As the PMO contractor continued to monitor and bring these cost and schedule issues to FTA's attention, FTA took actions to help protect the federal investment and control the project's cost and schedule. For example, in 1997, FTA required the grantee to submit a recovery plan addressing the cost and schedule issues. When the grantee was slow in

[9]Concern about cost growth in the Tren Urbano, BART, and South Boston Piers projects led to language in the Conference Report accompanying the fiscal year 2000 Department of Transportation Appropriations Act making funds contingent on the completion of finance plans setting forth the full cost to complete each project and how each grantee expects to pay those costs, among other things. The conferees also directed FTA to conduct ongoing, continual financial management reviews of the three projects.

submitting a plan that satisfactorily addressed these issues, FTA withheld the project's fiscal year 1998 funding. At the same time, FTA, through the PMO contractor, made numerous recommendations designed to help improve the grantee's cost and schedule controls. The grantee responded to these recommendations by hiring a scheduler and using a master critical path schedule to coordinate the project's design, land acquisition, and construction activities.

Also, in spring 1999, FTA assigned a financial management oversight consultant to assess the grantee's financial capacity to complete and operate the project as well as the existing system. During the review, the grantee updated its capital finance plan and, in June 1999, revised the transitway's cost estimate to $601 million and projected a new opening date of December 2003. At the urging of FTA, the grantee agreed to provide a $50 million reserve fund over the project's $601 million budget to cover any additional cost growth that might occur. In September 1999, the financial consultant issued a baseline financial capacity report, which concluded that, at the time, the grantee possessed the financial capacity to complete the full scope of the project. However, the report also identified areas for which financial exposure remained and recommended that a number of issues be monitored on a continuing basis, such as pending legislation that would change the method by which the grantee's capital and operating losses are funded. Both the financial consultant and the PMO contractor have continued to monitor these issues. After the legislation was enacted, the grantee issued a report on the impact this funding change would have and an updated finance plan. FTA's financial consultant is currently assessing these documents.

As we reported in August 1999, the Tren Urbano project in San Juan and the BART airport extension in San Francisco have also experienced significant cost increases and schedule delays.[10] In monitoring these projects, FTA and its PMO contractors have been aggressive in identifying, analyzing, and seeking to mitigate the impact of cost increases and schedule delays. For example, on the Tren Urbano project, after identifying cost increases and schedule delays, the PMO contractor analyzed the project's cost at FTA's direction. As part of this analysis, the PMO contractor projected a $370 million increase in cost, which was consistent with the grantee's latest revised cost estimate. FTA directed the grantee to update its finance plan to reflect the project's cost increase and assigned a financial consultant to assess the grantee's financial capacity to complete the project.[11] In addition, the PMO contractor recommended that the grantee take specific actions to help control the project's cost. The grantee implemented many of these recommendations. For example, the grantee is now using an integrated master schedule for the project to monitor the progress of seven individual construction contracts. These contracts, if not completed on schedule, could subsequently impact the cost of completing the final phase of the project.

On the BART airport extension project, the PMO contractor has scrutinized and actively monitored cost and schedule issues. Throughout the life of the project, the PMO contractor has raised concerns about the adequacy of the project's cost estimate and recommended that the grantee take specific actions that would improve the cost estimate and help contain the project's cost. For example, the PMO contractor found that the grantee's cost estimate did not account for 2 additional years of anticipated inflation and was understated by $40 million. As the project's cost continued to escalate, FTA directed the grantee to update its finance plan accordingly and assigned a financial consultant to assess the grantee's financial capacity to complete the project.[12] In conjunction with this review, the PMO contractor recommended and the grantee agreed to provide an additional $27 million in contingency funds to cover potential cost increases if needed.

[10]*Mass Transit: Status of New Starts Transit Projects With Full Funding Grant Agreements* (GAO/RCED-99-240, Aug. 19, 1999).

[11]For more information on our review of the grantee's finance plan, see *Mass Transit: Review of the Tren Urbano Finance Plan* (GAO/RCED-00-94R, Mar. 31, 2000).

[12]For more information on our review of the grantee's finance plan, see *Mass Transit: Review of the Bay Area Rapid Transit District's Airport Extension Finance Plan* (GAO/RCED-00-95, Mar. 31, 2000).

PMO Program Has Helped Improve FTA's Process for Awarding Full Funding Grant Agreements

By identifying recurring problems contributing to cost increases and schedule delays across projects, the PMO program has helped the Congress and FTA recognize the need to revise and expand the criteria for determining when a project is ready to receive a full funding grant agreement. Furthermore, FTA increasingly relies on its PMO and financial contractors to determine if potential grantees are ready to receive grant agreements. These efforts should help grantees avoid major cost, schedule, or quality problems and help protect the federal government's investment in major capital projects.

In making grant agreement decisions, FTA began, in 1999, to assess the readiness of only the projects that it had rated as either recommended or highly recommended through its annual new starts evaluation process.[13] At the core of FTA's readiness criteria is FTA's commitment to enter into a grant agreement only after (1) a project has completed a sufficient degree of final design for the full scope and cost of the project to be reliably estimated and (2) the grantee has clearly demonstrated that it has the financial capacity to complete and operate the project.

In assessing project readiness, FTA uses its PMO contractors to closely scrutinize projects' capital cost estimates, including the availability of adequate contingency funds to cover potential cost increases. FTA's efforts to review cost estimates before signing a grant agreement for the Tri-County Commuter Rail project in South Florida demonstrates this approach. Over a 6-month period, weekly conferences were held with the grantee, FTA, and the PMO contractor to discuss and review the proposed full funding grant agreement. According to the grantee, the PMO contractor conducted a thorough review of the cost estimates and held major discussions about the adequacy of contingency amounts before concluding that the grantee's budget would be adequate to complete the project.

[13]For more information on FTA's new starts evaluation process, see *Mass Transit: Implementation of FTA's New Starts Evaluation Process and FY 2001 Funding Proposals* (GAO/RCED-00-149, Apr. 28, 2000).

As a result of language in the Conference Report accompanying the Department of Transportation Appropriations Act for fiscal year 2000, FTA is sending financial capacity assessments, along with other documentation, to the House and Senate Appropriations Committees 60 days before signing full funding grant agreements.[14] Since the beginning of fiscal year 2000, FTA has signed grant agreements for four projects, all of which have received financial capacity assessments. According to FTA, another 12 projects are ready or will soon be ready for grant agreements in the next few months.

Funds Available for the PMO Program May Not Be Adequate to Cover Growing Number of Projects

FTA's oversight activities are financed with a statutorily limited set-aside of the funds made available for certain transit programs. In the past, this set-aside has been more than sufficient to cover the costs of FTA's oversight contractors. FTA officials now believe that this amount will soon be insufficient to allow them to continue their current level of oversight activities on major transit projects, mainly because (1) the number of projects in one of its capital investment programs—new starts—has increased by almost 90 percent since 1996 and will continue to grow and (2) because many of the new projects entering the preliminary engineering phase will be managed by transit agencies that have little experience designing and constructing large transit projects such as a new subway system. Because of this anticipated shortfall, FTA believes that, in fiscal year 2002, it will have to make some hard decisions about where to cut back the level of oversight activities for individual projects.

[14]FTA also provides these assessments to its authorizing committees.

Funds Available for FTA's Oversight Program Are Limited by Law

FTA is authorized to use up to one half of 1 percent of the funds made available annually for the Urbanized Area Formula Program and the Nonurbanized Area Formula Program and three quarters of 1 percent of the funds made available each year for the Capital Investment Program for its oversight activities.[15] Generally, as the federal funds made available for these programs have increased, so have the amounts set aside for FTA's oversight activities. Table 1 shows the amounts made available (set aside) for oversight activities from these programs over the past 5 fiscal years. In fiscal year 1998, the set-aside was capped at $15 million by the 1998 Department of Transportation Appropriations Act.[16]

Table 1: Funds Set Aside for FTA's Oversight Program by Source, Fiscal Years 1996 Through 2000

Dollars in millions

Source	Fiscal year 1996	Fiscal year 1997	Fiscal year 1998	Fiscal year 1999	Fiscal year 2000
Formula programs	$10.0	$10.5	$7.9	$13.7	$14.9
Capital investment programs	12.5	14.2	6.5	17.3	18.8
Total	**$22.5**	**$24.7**	**$14.4**	**$31.0**	**$33.7**

Source: FTA.

FTA allocates the funds for oversight among five major categories of oversight activities: project management, financial management, safety, procurement, and management oversight. Table 2 shows how FTA has used the funds available for oversight, including the set-asides and unused

[15]The statutory provision concerning the financing of FTA's oversight activities also authorizes set-asides from funds made available for projects under the National Capital Transportation Act of 1969, as well as for transit projects constructed as substitutes for construction on the interstate system. By 1996, funds related to substitute projects were no longer available for oversight. In fiscal years 1996 through 1999, FTA did not use National Capital Transportation Act funds for oversight. According to FTA, the program was fully funded in 1999.

[16]The cap was imposed in response to a 1997 report issued by the Department of Transportation's Office of Inspector General that had determined that the funds set aside for the oversight program had been used for ineligible activities and significantly underutilized by FTA in fiscal years 1994 through 1996.

portions of the set-asides from prior years since fiscal year 1996. As the table shows, the cost of providing PMO services has consumed the largest portion of available oversight funds (almost 65 percent of available funds in fiscal year 1999).

Table 2: FTA's Oversight Expenditures by Major Oversight Activity, Fiscal Years 1996-2000

Dollars in millions

Oversight activity	Fiscal year 1996	Fiscal year 1997	Fiscal year 1998	Fiscal year 1999	Fiscal year 2000[a]
Project management	$12.3	$14.2	$16.4	$19.3	$16.1
Financial management[b]	2.0	1.8	1.7	2.7	2.4
Safety[c]	0.9	1.4	2.7	0.0	0.5
Procurement[c]	0.4	1.1	1.7	1.6	0.6
Management[c]	5.5	7.2	9.1	7.0	3.8
Total	**$21.1**	**$25.7**	**$31.6**	**$30.6**	**$23.4**

[a]Actual expenditures through June 2000.

[b]Includes expenditures for financial capacity reviews.

[c]FTA's safety, procurement, and management oversight reviews focus principally on grantees' compliance with federal laws governing such issues as rail safety, drug and alcohol testing, procurement procedures, and civil rights protections.

Source: FTA's data.

The annual growth in expenditures for PMO activity reflects the growth in the number of major capital projects requiring oversight coverage. During fiscal years 1996 through 2000, the total number of major capital projects that FTA must monitor has grown by almost 35 percent—from 81 projects in fiscal year 1996 to 108 in June 2000. Of this, the number of new starts projects requiring oversight has increased by almost 90 percent—from 36 projects in fiscal year 1996 to 68 in June 2000. Table 3 summarizes the growth of FTA's PMO caseload since fiscal year 1996.

Table 3: Summary of FTA's PMO Caseload by Type of Project, Fiscal Years 1996-2000

Number of projects					
Type of project	**Fiscal year 1996**	**Fiscal year 1997**	**Fiscal year 1998**	**Fiscal year 1999**	**Fiscal year 2000[a]**
New starts	36	39	41	59	68
Rail modernization	34	35	37	39	35
Other	11	12	11	3	5
Total	**81**	**86**	**89**	**101**	**108**

[a]Actual as of June 2000.

Source: FTA's data.

Amounts Available for Project Management Oversight Could Be Insufficient to Monitor Growing Number of Projects

FTA believes that as the number of projects requiring oversight continues to grow, the funds available for the PMO program will soon be insufficient to adequately monitor all major capital projects. FTA anticipates that a funding shortfall of about $5 million will occur in fiscal year 2002. However, FTA was unable to tell us what level of funding shortfall would occur after fiscal year 2002 because of uncertainties about its budget and the number of projects that may require oversight.

According to FTA, the growing demand for PMO services is due in large part to the large number of new starts projects identified as eligible for funding by the 1998 Transportation Equity Act for the 21st Century (TEA-21) and to a lesser degree by the need to increase the oversight of ongoing projects with known problems, such as Tren Urbano and the South Boston Piers transitway. For example, of the nearly 150 new projects identified by TEA-21, 25 are expected to enter the preliminary engineering (early design) stage of development within the next year. Of the remaining 125 projects, as many as 25 could enter preliminary engineering in each succeeding year. Each of these projects will require an oversight contractor to assess, for the first time, the grantee's project management plan and monitor the project's progress as it proceeds through preliminary engineering toward final design. Furthermore, FTA notes that many of these projects will be managed by transit authorities with little or no experience managing rail or other large transit projects. Additionally, in fiscal year 2001, FTA expects to execute full funding grant agreements for about 15 projects that will begin construction. For these projects, FTA will have to authorize additional hours for the oversight contractors already assigned to (1) reassess the

projects' estimated costs and schedules; (2) assess their readiness for full funding grant agreements; and (3) once the grant agreements have been executed, monitor the grantees' implementation of the construction phase, which may take up to 4 years to complete.

FTA believes that its only recourse will be to scale back the level of oversight currently being provided by doing a risk-based ranking of projects. This will not be an easy task, according to FTA, because the transit agencies with little or no experience in constructing rail systems will likely require increased, rather than reduced, oversight. However, FTA has not identified the amount of any shortfall after fiscal year 2002, options to fund the shortfall, or steps to compensate for shortfalls in oversight funds.

Conclusions

FTA's oversight of major capital projects has evolved over the past several years to include more comprehensive and ongoing reviews of a proposed grantee's financial capacity to construct a major transit project. Furthermore, FTA now routinely relies on its PMO contractors and financial consultants to determine when future recipients are ready to receive federal funds to build new transit systems or add major extensions to their existing transit programs. These changes in FTA's oversight and grant-making activities have come about because of project cost and schedule problems identified through the PMO program and the increased congressional scrutiny resulting from those problems. In addition, these changes should help grantees avoid major cost, schedule, or quality problems and help protect the federal government's investment in major capital projects. However, with the likelihood of an increasing number of transit projects requiring project oversight, FTA believes that the funds available to pay for these oversight activities may soon be insufficient to adequately monitor all large-dollar projects. FTA would then have to make some hard choices about how it will apply limited oversight funds. FTA has not yet identified the level of funding shortfalls that may occur beyond fiscal year 2002 and how it would address any shortfalls.

Recommendation

To address FTA's oversight needs, the Secretary of Transportation should direct the Administrator, FTA, to develop a plan to (1) determine the amount of funds needed to maintain an adequate level of oversight for all projects requiring oversight, the level of funding that likely will be available for this purpose, and any resultant shortfall in funds; (2) identify options to

cover any projected funding shortfalls; and (3) identify steps to respond to any shortfalls that may occur. The Secretary should also communicate this plan to the Congress.

Agency Comments

We provided the Department of Transportation with a draft of this report for review and comment. We met with Federal Transit Administration officials, including the Associate Administrator, Office of Program Management, and officials from the Office of Budget and Policy. FTA agreed with the report's contents and provided us with minor technical comments, which we have incorporated where appropriate.

Scope and Methodology

To identify how FTA is overseeing major capital projects, we reviewed applicable legislation, regulations, program guidance, and other documentation on FTA's oversight process and procedures. We also interviewed FTA officials in the Offices of Oversight and Engineering and solicited the views of FTA's regional and transit authority officials responsible for major transit projects.

To identify the types of benefits that have resulted from FTA's PMO program, we reviewed the reports of the PMO contractors and FTA's financial consultants and visited 4 of FTA's 10 regional offices. We selected these regional offices—located in New York, San Francisco, Boston, and Atlanta—on the basis of (1) the concentration of grantees and projects receiving PMO oversight, (2) the projected cost of these projects, and (3) the location of three major projects—the South Boston Piers transitway, BART's airport extension, and Puerto Rico's Tren Urbano—that have experienced significant cost increases and schedule delays. When we began our review in September 1999, FTA was using 15 PMO contractors to oversee 49 grantees responsible for implementing 101 major capital projects estimated to cost $49 billion to complete. At that time, 57 of the 101 projects covered by the PMO program resided in the four regions we visited. During our site visits, we interviewed FTA officials responsible for the PMO program and seven PMO contractors. We discussed the benefits identified in the PMO reports with both the PMO contractors and appropriate FTA staff. These seven PMO contractors were responsible for overseeing 28 of the 49 grantees receiving oversight. Furthermore, these 28 grantees were implementing 54 of the 101 projects receiving oversight, which together accounted for 63 percent of the total estimated dollar value—$49 billion—of all projects.

We also met and discussed PMO program benefits with nine grantees implementing major capital projects. These grantees were selected to represent (1) a variety of project types, including rail, bus, and vehicle acquisition projects, as well as different methods of construction, such as design/build (where a single contractor is responsible for designing and building all or major parts of the project); (2) transit agencies with varying degrees of experience in carrying out major capital projects; and (3) the three projects that have experienced significant cost increases and schedule delays. These nine grantees are responsible for implementing 28 projects, or 29 percent of all projects receiving project management oversight. We also met with the financial consultants responsible for reviewing the finance plans for the three projects that have had major cost and schedule problems.

To determine project management oversight costs and funding needs, we reviewed FTA's oversight budgets and related cost data. We also met with FTA headquarters officials, including officials responsible for program management oversight and transit budget issues.

We performed our review from September 1999 through August 2000 in accordance with generally accepted government auditing standards.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will provide copies of this report to the Honorable Rodney E. Slater, Secretary of Transportation; the Honorable Nuria I. Fernandez, Acting Administrator, Federal Transit Administration; the Honorable Jacob J. Lew, Director, Office of Management and Budget; and other interested parties. We will also make copies available to others on request.

Please call me at (202) 512-2834 if you or your staff have any questions about this report. Key contributors to this report were Jack Bagnulo, Kirk Kiester, Dave Lehrer, Carol Ruchala, and Ron Stouffer.

Phyllis F. Scheinberg
Associate Director,
Transportation Issues

Major Capital Projects Covered by the Project Management Oversight Program as of June 30, 2000

Grantee	Name	Type	Location	Phase	Total cost	PMO contractor
Region 1 (Boston)						
Bridgeport	Bridgeport Intermodal Center	New start	Bridgeport, Conn.	Final design/ construction	$55,000,000	Delon Hampton
Connecticut DOT	New Britain-Hartford Busway	New start	Hartford, Conn.	Preliminary engineering	80,000,000	Carter & Burgess, Inc.
Connecticut DOT	Stamford Urban Transitway	New start	Stamford, Conn.	Preliminary engineering	23,000,000	Carter & Burgess, Inc.
Massachusetts Bay Transportation Authority	South Boston Piers Transitway	New start	Boston, Mass.	Construction	601,000,000	Transportation Construction Services, Inc.
New Hampshire DOT	Lowell to Nashua Extension	New start	Nashua, N.H.	Preliminary engineering	41,000,000	Carter & Burgess, Inc.
Northern New England Passenger Rail Authority	Portland Rail Restoration	Rail mod	Portland, Maine	Construction	60,000,000	Transportation Construction Services, Inc.
Region 1 total					**$860,000,000**	
Region 2 (New York)						
Connecticut DOT	New Haven Interlocking	Rail mod	New Haven, Conn.	Final design/ construction	126,000,000	Delon Hampton
Connecticut DOT	New Haven Terminal and Yard	Rail mod	New Haven, Conn.	Final design/ construction	139,000,000	Delon Hampton
Connecticut DOT	New Haven Mainline Catenary Replacement	Rail mod	Stamford, Conn.	Construction	300,000,000	Delon Hampton
Connecticut DOT	Stamford Center Island Platform	Rail mod	Stamford, Conn.	Construction	113,000,000	Delon Hampton
Long Island Rail Road	2000 Track Work Program	Rail mod	New York, N.Y.	Construction	64,000,000	Fluor Daniel
Long Island Rail Road	Atlantic Terminal Improvements	Rail mod	New York, N.Y.	Final design	23,000,000	Fluor Daniel
Long Island Rail Road	Babylon Station Improvements	Rail mod	New York, N.Y.	Construction	7,000,000	Fluor Daniel
Long Island Rail Road	Communications Upgrade	Rail mod	New York, N.Y.	Construction	44,000,000	Fluor Daniel
Long Island Rail Road	Diesel Yard Improvement	Rail mod	New York, N.Y.	Construction	65,000,000	Fluor Daniel
Long Island Rail Road	East Side Access	New start	New York, N.Y.	Preliminary engineering	4,300,000,000	Fluor Daniel
Long Island Rail Road	Power Upgrade Program	Rail mod	New York, N.Y.	Construction	43,000,000	Fluor Daniel

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Grantee	Name	Type	Location	Phase	Total cost	PMO contractor
Long Island Rail Road	Rehabilitation of Bridges	Rail mod	New York, N.Y.	Construction	8,000,000	Fluor Daniel
Long Island Rail Road	Signal Upgrade Program	Rail mod	New York, N.Y.	Construction	23,000,000	Fluor Daniel
Metro-North Railroad	Grand Central Station Improvements	Rail mod	New York, N.Y.	Construction	284,000,000	Delon Hampton
Metro-North Railroad	Park Avenue Viaduct	Rail mod	New York, N.Y.	Construction	143,000,000	Delon Hampton
New Jersey Transit Corporation	Hoboken Improvement Program	Rail mod	Newark, N.J.	Final design/ construction	300,000,000	Delon Hampton
New Jersey Transit Corporation	Hudson-Bergen Light Rail Transit (Phase 1)	New start	Hudson-Bergen, N.J.	Construction	1,203,000,000	Delon Hampton
New Jersey Transit Corporation	Hudson-Bergen Light Rail Transit (Phase 2)	New start	Hudson-Bergen, N.J.	Final design	1,215,400,000	Delon Hampton
New Jersey Transit Corporation	Montclair Connection	Rail mod	Newark, N.J.	Final design/ construction	45,000,000	Delon Hampton
New Jersey Transit Corporation	Secaucus Transfer Station	New start	Newark, N.J.	Construction	553,000,000	Delon Hampton
New Jersey Transit Corporation	Newark City Subway	Rail mod	Newark, N.J.	Construction	107,000,000	Delon Hampton
New Jersey Transit Corporation	Newark Rail Link (Phase 1)	New start	Newark, N.J.	Final design	211,000,000	Delon Hampton
New Jersey Transit Corporation	Newark Penn Station	Rail mod	Newark, N.J.	Construction	31,000,000	Delon Hampton
New Jersey Transit Corporation	New York, Susquehanna & Western Railroad	Rail mod	Newark, N.J.	Final design	118,000,000	Delon Hampton
New Jersey Transit Corporation	Penn Station Expansion	Rail mod	New York, N.Y.	Construction	133,000,000	Delon Hampton
New York City DOT	Saint George Ferry Terminal	Other	New York, N.Y.	Final design	91,000,000	Fluor Daniel
New York City DOT	Whitehall Ferry Terminal	Other	New York, N.Y.	Construction	110,000,000	Fluor Daniel
New York City Transit	New Vehicles	New start	New York, N.Y.	Acquisition	1,447,000,000	Fluor Daniel
New York City Transit	Queens Boulevard Line Connection	New start	New York, N.Y.	Construction	645,000,000	Fluor Daniel
New York City Transit	Signals Modernization	Rail mod	New York, N.Y.	Construction	1,311,000,000	Fluor Daniel
New York City Transit	Station Rehabilitation	Rail mod	New York, N.Y.	Construction	1,800,000,000	Fluor Daniel
New York City Transit	Ventilation Plant Improvements	Rail mod	New York, N.Y.	Construction	561,000,000	Fluor Daniel

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Grantee	Name	Type	Location	Phase	Total cost	PMO contractor
Region 2 total					**$15,563,400,000**	
Region 3 (Philadelphia)						
Mass Transit Administration, Maryland DOT	Light Rail Transit Double Tracking	New start	Baltimore, Md.	Preliminary engineering	153,000,000	Carter & Burgess, Inc.
Mass Transit Administration, Maryland DOT	MARC Frederick Extension	New start	Frederick, Md.	Construction	60,000,000	Carter & Burgess, Inc.
Mass Transit Administration, Maryland DOT	MARC Vehicle Procurement	New start	Baltimore, Md.	Acquisition	132,000,000	Carter & Burgess, Inc.
Port Authority of Allegheny County	Airport Busway	New start	Pittsburgh, Pa.	Construction	326,800,000	Stone & Webster
Port Authority of Allegheny County	East Busway Extension	Other	Pittsburgh, Pa.	Final design/ construction	62,800,000	Stone & Webster
Port Authority of Allegheny County	Stage II Light Rail Reconstruction	Rail mod	Pittsburgh, Pa.	Final design/ construction	386,500,000	Stone & Webster
Southeastern Pennsylvania Transportation Authority	Blue Line	Rail mod	Philadelphia, Pa.	Final design/ construction	1,058,000,000	Carter & Burgess, Inc.
Hampton Roads Transit	Norfolk-Virginia Beach Light Rail Transit	New start	Norfolk, Va.	Preliminary engineering	524,000,000	Frederic R. Harris
Region 3 total					**$2,703,100,000**	
Region 4 (Atlanta)						
Hillsborough Area Regional Transit Authority	Electric Streetcar	New start	Tampa, Fla.	Final design	27,000,000	Transportation Construction Services, Inc.
Hillsborough Area Regional Transit Authority	Regional Rail	New start	Tampa, Fla.	Preliminary engineering	575,000,000	Transportation Construction Services, Inc.
Jacksonville Transit Authority	People Mover Extension	New start	Jacksonville, Fla.	Construction	160,000,000	Transportation Construction Services, Inc.
Metropolitan Atlanta Rapid Transit Authority	Metro Rail Extension - North Springs	New start	Atlanta, Ga.	Construction	526,000,000	Urban Engineers, Inc.
Memphis Area Transit Authority	Medical Center Rail Extension	New start	Memphis, Tenn.	Final design	74,600,000	Transportation Construction Services, Inc.
Miami-Dade Transit Agency	Earlington Heights to Miami Intermodal Center	New start	Miami, Fla.	Preliminary engineering	231,000,000	Sverdrup Civil, Inc.

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Grantee	Name	Type	Location	Phase	Total cost	PMO contractor
Miami-Dade Transit Agency	North 27th Avenue Corridor Bus Rapid Transit	New start	Miami, Fla.	Preliminary engineering	80,000,000	Sverdrup Civil, Inc.
Miami-Dade Transit Agency	Palmetto Extension	New start	Miami, Fla.	Construction	87,000,000	Sverdrup Civil, Inc.
Miami-Dade Transit Agency	South Busway Extension, Phase II	New start	Miami, Fla.	Preliminary engineering	87,758,000	Sverdrup Civil, Inc.
Metropolitan Transit Commission	Charlotte-Pineville Light Rail Transit	New start	Charlotte, N.C.	Preliminary engineering	331,000,000	Sverdrup Civil, Inc.
Puerto Rico DOT	Tren Urbano Rapid Rail	New start	San Juan, P.R.	Construction	1,653,000,000	MK Centennial, Inc.
Puerto Rico DOT	Tren Urbano—Minillas Extension	New start	San Juan, P.R.	Preliminary engineering	478,000,000	MK Centennial, Inc.
Metropolitan Transit Authority and Regional Transportation Authority	East Nashville Corridor Commuter Rail	New start	Nashville, Tenn.	Preliminary engineering	33,200,000	Transportation Construction Services, Inc.
Tri-Rail	Double Track, Segment 3	Rail mod	Broward County, Fla.	Construction	31,000,000	Urban Engineers, Inc.
Tri-Rail	Double Track, Segment 4	Rail mod	Broward County, Fla.	Final design	35,000,000	Urban Engineers, Inc.
Tri-Rail	Double Track, Segment 5	Rail mod	Broward County, Fla.	Preliminary engineering	327,000,000	Urban Engineers, Inc.
Triangle Transit Authority	Regional Rail, Phase 1	New start	Raleigh, N.C.	Preliminary engineering	475,000,000	Frederic R. Harris
Region 4 total					**$5,211,558,000**	
Region 5 (Chicago)						
City of Chicago	Downtown Subway Rehabilitation	Rail mod	Chicago, Ill.	Construction	27,000,000	Sverdrup Civil, Inc.
City of Chicago	Jackson Park Improvements	Rail mod	Chicago, Ill.	Construction	31,000,000	Sverdrup Civil, Inc.
Chicago Transit Authority	Douglas Branch Reconstruction	New start	Chicago, Ill.	Final design	420,000,000	Sverdrup Civil, Inc.
Chicago Transit Authority	Ravenswood Line Expansion	New start	Chicago, Ill.	Preliminary engineering	327,000,000	Sverdrup Civil, Inc.
Greater Cleveland Regional Transit Authority	Euclid Corridor Bus Rapid Transit	New start	Cleveland, Ohio	Preliminary engineering	220,000,000	Daniel, Mann, Johnson, & Mendenhall
Metra	Central Kane Corridor	New start	Chicago, Ill.	Preliminary engineering	93,000,000	Sverdrup Civil, Inc.

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Grantee	Name	Type	Location	Phase	Total cost	PMO contractor
Metra	North Central Corridor	New start	Chicago, Ill.	Preliminary engineering	177,900,000	Sverdrup Civil, Inc.
Metra	Southwest Service Corridor	New start	Chicago, Ill.	Preliminary engineering	165,500,000	Sverdrup Civil, Inc.
Metro Transit and Metropolitan Council of Governments	Hiawatha Avenue Corridor Light Rail Transit	New start	Minneapolis, Minn.	Final design	548,600,000	Hill International
Ohio-Kentucky-Indiana Regional Council of Governments	I-71 Corridor Light Rail Transit	New start	Cincinnati, Ohio	Preliminary engineering	875,000,000	Parsons Transportation Group
Region 5 total					**$2,885,000,000**	
Region 6 (Fort Worth)						
Austin Capital Metropolitan Transportation Authority	North/South Central Corridor Light Rail Transit	New start	Austin, Tex.	Preliminary engineering	739,000,000	Daniel, Mann, Johnson, & Mendenhall
Central Arkansas Transit Authority	River Rail Light Rail Transit	New start	Little Rock, Ark.	Final design	13,000,000	Parsons Brinckerhoff
Dallas Area Rapid Transit (DART) Authority	North Central Light Rail Transit Extension	New start	Dallas, Tex.	Final design/ construction	517,000,000	Urban Engineers, Inc.
Fort Worth Transportation Authority and DART	Trinity Railway Express (formerly RAILTRAN)	New start	Fort Worth, Tex.	Construction	231,000,000	Urban Engineers, Inc.
Metropolitan Transit Authority of Harris County	Regional Bus Plan	New start	Houston, Tex.	Construction	1,000,000,000	Stone & Webster
Regional Transit Authority of Orleans and Jefferson	Canal Street Corridor	New start	New Orleans, La.	Final design	157,000,000	Parsons Transportation Group
Region 6 total					**$2,657,000,000**	
Region 7 (Kansas City, Mo.)						
Bi-State Development Agency	St. Clair Extension—Phases 2A & B	New start	St. Louis, Mo.	Construction	416,200,000	Stone & Webster
Johnson County	I-35 Commuter Rail	New start	Johnson County, Kans.	Preliminary engineering	30,900,000	Frederic R. Harris
Region 7 total					**$447,100,000**	
Region 8 (Denver)						
Colorado DOT	Southeast Corridor	New start	Denver, Co.	Final design	1,670,000,000	STV, Inc.
Regional Transportation District	Southwest Corridor Light Rail Transit	New start	Denver, Co.	Construction	178,000,000	STV, Inc.

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Grantee	Name	Type	Location	Phase	Total cost	PMO contractor
Utah Transit Authority	Downtown to University Light Rail Transit	New start	Salt Lake City, Utah	Final design	118,500,000	Hill International
Utah Transit Authority	North-South Corridor Light Rail Transit	New start	Salt Lake City, Utah	Acquisition	312,500,000	Hill International
Region 8 total					**$2,279,000,000**	
Region 9 (San Francisco)						
Bay Area Rapid Transit (BART) District	Car Rehabilitation	Rail mod	San Francisco, Calif.	Acquisition	454,000,000	STV, Inc.
BART District	BART Extension to San Francisco International Airport	New start	San Francisco, Calif.	Construction	1,483,000,000	STV, Inc.
Los Angeles County Metropolitan Transportation Authority	East Side, Phase 3	New start	Los Angeles, Calif.	Suspended	979,000,000	Hill International
Los Angeles County Metropolitan Transportation Authority	Mid-City, Phase 3	New start	Los Angeles, Calif.	Suspended	491,000,000	Hill International
Los Angeles County Metropolitan Transportation Authority	North Hollywood, Phase 3	New start	Los Angeles, Calif.	Construction	1,310,800,000	Hill International
Metropolitan Transit Development Board	Mid Coast Corridor Light Rail Transit	New start	San Diego, Calif.	Preliminary engineering	117,000,000	Stone & Webster
Metropolitan Transit Development Board	Mission Valley East Light Rail Extension	New start	San Diego, Calif.	Final design	431,000,000	Stone & Webster
San Francisco Municipal Railway	Advanced Train Control System	Rail mod	San Francisco, Calif.	Construction	70,000,000	STV, Inc.
San Francisco Municipal Railway	Light Rail Vehicles	Rail mod	San Francisco, Calif.	Acquisition	514,000,000	STV, Inc.
San Francisco Municipal Railway	Third Street Light Rail Transit	New start	San Francisco, Calif.	Preliminary engineering	462,000,000	STV, Inc.
San Francisco Municipal Railway	Trolley Coaches	Other	San Francisco, Calif.	Acquisition	208,000,000	STV, Inc.
North San Diego County Transit District	Oceanside-Escondido	New start	North San Diego, Calif.	Preliminary engineering	254,000,000	Stone & Webster
Regional Public Transportation Authority	Central Phoenix-East Valley Light Rail Transit	New start	Phoenix, Ariz.	Preliminary engineering	884,000,000	Daniel, Mann, Johnson, & Mendenhall

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Grantee	Name	Type	Location	Phase	Total cost	PMO contractor
Sacramento Regional Transit District	Folsom Extension	Rail mod	Sacramento, Calif.	Final design	169,000,000	Gannett Fleming, Inc.
Sacramento Regional Transit District	South Corridor Light Rail Extension	New start	Sacramento, Calif.	Final design/ construction	222,000,000	Gannett Fleming, Inc.
Region 9 total					**$8,048,800,000**	
Region 10 (Seattle)						
Sound Transit	Seattle Regional Light Rail Transit (Link)	New start	Seattle, Wash.	Final design	2,480,000,000	Gannett Fleming, Inc.
Sound Transit	Sounder Commuter Rail	New start	Seattle, Wash.	Final design/ construction	820,400,000	Gannett Fleming, Inc.
Tri-County Metropolitan Transportation District	Interstate “MAX” Light Rail Extension	New start	Portland, Oreg.	Final design	350,000,000	Parsons Transportation Group
Region 10 total					**$3,650,400,000**	
Headquarters						
Washington Metropolitan Area Transit Authority	Branch Avenue Extension	New start	Washington, D.C.	Construction	920,200,000	Transportation Construction Services, Inc.
Washington Metropolitan Area Transit Authority	Branch Avenue Yard	New start	Washington, D.C.	Final design	112,000,000	Transportation Construction Services, Inc.
Washington Metropolitan Area Transit Authority	Dulles Corridor Bus Rapid Transit	New start	Washington, D.C.	Preliminary engineering	253,000,000	Transportation Construction Services, Inc.
Washington Metropolitan Area Transit Authority	Infrastructure Renewal Program	Other	Washington, D.C.	Various	1,500,000,000	Transportation Construction Services, Inc.
Washington Metropolitan Area Transit Authority	Largo Town Center Extension	New start	Washington, D.C.	Preliminary engineering	434,000,000	Transportation Construction Services, Inc.
Headquarters total					**$3,219,200,000**	
Grand total					**$47,524,558,000**	

Source: FTA.

Project Management Oversight Contractors

Carter & Burgess, Inc.
Daniel, Mann, Johnson, & Mendenhall
Delon Hampton
Fluor Daniel
Frederic R. Harris
Gannett Fleming, Inc.
Hill International
MK Centennial, Inc.
Parsons Brinckerhoff
Parsons Transportation Group
Stone & Webster
STV, Inc.
Sverdrup Civil, Inc.
Transportation Construction Services, Inc.
Urban Engineers, Inc.

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