
Office of Inspector General

Audit Report

**REPORT ON THE FINANCE PLAN
FOR THE TREN URBANO RAIL
TRANSIT PROJECT**

Federal Transit Administration

***Report Number: RT-2000-091
Date Issued: May 25, 2000***





Memorandum

**U.S. Department of
Transportation**
Office of the Secretary
of Transportation
Office of Inspector General

Subject: **ACTION:** Report on the Finance Plan for the
Tren Urbano Rail Transit Project, San Juan, Puerto Rico
RT-2000-091

Date: May 25, 2000

From: Alexis M. Stefani
Assistant Inspector General for Auditing

Reply To: JA-1
Attn. Of:

To: Nuria Fernandez
Acting Federal Transit Administrator

As requested in the Conference Report to the Fiscal Year 2000 Department of Transportation and Related Agencies Appropriation Act (PL 106-69), the Department of Transportation's Office of Inspector General (OIG) has independently analyzed the finance plan for the Tren Urbano Rail Transit Project (Tren Urbano), San Juan, Puerto Rico. Tren Urbano is a new, fixed-guideway rail transit system in the San Juan, Puerto Rico metropolitan area. Tren Urbano will be approximately 10.7 miles in length, and will have 16 stations along its route.

The Conference Report directed the project sponsor, the Puerto Rico Highway and Transportation Authority (PRHTA), to provide a finance plan that clearly delineates the full costs to complete the project and the manner in which the sponsor expects to pay those costs. It then directed the Federal Transit Administration (FTA) to conduct a final review of the plan, accept the plan, and certify to the House and Senate Committees on Appropriations that the fiscal management of the project meets or exceeds accepted U.S. Government standards. In addition, Congress directed OIG to conduct an independent analysis of the finance plan prepared by the project sponsor and provide such analysis to the House and Senate Committees on Appropriations within 60 days of FTA certifying the plan. FTA has not yet certified the plan. This report presents the results of our review.

In our opinion, PRHTA has submitted a finance plan that offers reasonable and supportable funding and cost projections to construct Tren Urbano, without

adversely impacting Puerto Rico's other transportation requirements. PRHTA's finance plan delineates multi-year funding, capital expenditures, and operating expenses for all its transportation activities, including Tren Urbano.

The finance plan includes estimates that Tren Urbano will cost \$1.676 billion at completion in 2002, \$426 million more than the cost estimate in the original 1996 full funding grant agreement budget, and \$22 million over the net project cost in the amended 1999 grant agreement budget. The plan and supporting documentation indicate that FTA and the Federal Highway Administration (FHWA) will provide \$708.3 million, and PRHTA will provide the remaining \$967.7 million from local funds.

The \$426 million cost growth is due to contract award amounts exceeding estimates; contract options and project scope changes; and contingencies for claims or additional change order activity. Contract awards at amounts higher than budgeted values and exercised options account for \$171.7 million (14 percent) of the cost increases from March 1996 to July 1999.

The finance plan indicates that PRHTA has sufficient dedicated revenues for multiple transportation projects through 2018, as well as the financial capacity to construct Tren Urbano. Specifically, the plan indicates that pledged revenues favorably exceed debt coverage requirements.

PRHTA has received a commitment letter from the Department of Transportation to provide \$300 million in credit assistance under the Transportation Infrastructure Finance and Innovation Act (TIFIA). Under the loan commitment, PRHTA would not have to repay principal on the TIFIA loan for the first 7 years of the 35-year term. Because TIFIA interest rates may be lower than rates for issuing long-term bonds, the TIFIA loan may provide more flexibility should PRHTA issue additional long-term debt. We will monitor how PRHTA uses its \$300 million TIFIA credit assistance.

During our review, we observed that Tren Urbano has encountered schedule delays. It is essential to the management and oversight of the project that critical milestone dates be built into the integrated project master schedule. Tren Urbano does not have a master schedule, so we were unable to determine the exact length of the delay.

We recommend that FTA ensure that PRHTA develops an integrated project master schedule. On May 8, 2000, we discussed our finding and recommendation with FTA's Associate Administrator for Program Management. He concurred with our finding and recommendation.

In accordance with Department of Transportation Order 8000.1C, we would appreciate receiving your written comments within 30 days. If you concur with our finding and recommendation, please indicate the specific action taken or planned and target date for completion. If you do not concur, please provide your rationale. Furthermore, you may provide alternate courses of action that you believe would resolve the issues presented in this report.

We appreciate the courtesies and cooperation of FTA and PRHTA representatives. If you have any questions concerning this report, please call me at (202) 366-1992 or Mark Dayton, Acting Deputy Assistant Inspector General for Competition, Rail, Transit, and Special Programs, at (202) 366-9970.

Attachment

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Executive Summary

Report on Finance Plan for the Tren Urbano Rail Transit Project

San Juan, Puerto Rico

Federal Transit Administration

Report No. RT-2000-091

May 25, 2000

OBJECTIVE

In accordance with congressional direction, our objective was to conduct an independent analysis of the Tren Urbano Rail Transit Project's (Tren Urbano) finance plan, including whether funding and cost projections are reasonable and supportable.

BACKGROUND

The Puerto Rico Highway and Transportation Authority (PRHTA) is the project sponsor for Tren Urbano, a new, fixed-guideway rail transit system in the San Juan, Puerto Rico metropolitan area. The purpose of Tren Urbano is to alleviate traffic congestion while serving existing and projected development within the San Juan metropolitan area. Tren Urbano will be approximately 10.7 miles in length, and will have 16 stations along its route. The Federal Transit Administration (FTA) originally awarded a full funding grant agreement to PRHTA in March 1996 to design and construct the Tren Urbano. FTA committed to contribute \$307.4 million toward the total project cost of \$1.250 billion, and PRHTA planned to fund the balance through pledged revenues and related revenue bonds. The revenue operation date was scheduled for July 2001.

PRHTA estimated in July 1999 that Tren Urbano will cost \$1.676 billion, a \$426 million increase over the original estimate. It attributes this cost growth to contract award amounts exceeding estimates; exercise of contract options and project scope changes such as the purchase of 10 additional rail vehicles, the addition of 2 stations, certain enhancements to other stations, and improvements in nearby areas; and a larger contingency of \$49.9 million for claims or additional change order activity. PRHTA also included \$22 million for project costs incurred before 1996.

At PRHTA's request, FTA amended the grant agreement in July 1999 to recognize the revised cost estimate. The new agreement amended the scope, special terms and conditions for Tren Urbano, recognized the increase in total project costs, authorized the use of urban area transit formula and highway funds for the project, and extended the revenue operation date for the project to May 2002. The amended agreement now

shows that Federal participation in Tren Urbano has increased to \$708.3 million, consisting of \$307.4 million in Section 5309 New Start funds, \$141 million in Section 5307 formula funds, and \$259.9 million in Federal Highway Administration (FHWA) funds. PRHTA will provide the remaining \$967.7 million from local funds.

PRHTA submitted a revised finance plan in June 1999 as part of its application for the amended full funding grant agreement. This plan, modified in August 1999, describes funding, capital expenditures, and operating expenses through 2018¹ for all its transportation activities, including Tren Urbano.

RESULTS IN BRIEF

In our opinion, PRHTA has submitted a finance plan that offers reasonable and supportable funding and cost projections to construct the \$1.68 billion Tren Urbano, without adversely impacting Puerto Rico's other transportation requirements. PRHTA's finance plan delineates multi-year funding, capital expenditures, and operating expenses for all its transportation activities, including Tren Urbano.

PRHTA Finance Plan is Reasonable and Supportable

PRHTA has the financial capacity to construct, operate and maintain Tren Urbano. The finance plan shows dedicated revenues for PRHTA's multiple transportation projects through 2018 and the use of revenue bonds, as necessary, to finance construction projects. Specifically, the project plan indicates pledged revenues favorably exceed debt coverage requirements for all of PRHTA's highway and transportation activities. The finance plan also adequately describes the assumptions underlying revenue projections. PRHTA has a 30-year history of successfully financing construction projects through its use of bond issues, and it has maintained its creditworthiness. Finally, the finance plan illustrates that PRHTA has sufficient revenues to cover operating expenses for its highways, toll roads, Metrobus system, and Tren Urbano.

Likewise, PRHTA's finance plan and other supporting documents provide a reasonable and supportable cost estimate for Tren Urbano, including reasonable assumptions of future cost increases. The finance plan identifies annual capital expenditures and operating expenditures for Tren Urbano, as well as similar expenditures for highways, toll roads, and other transportation projects such as San Juan's Metrobus system.

We determined that PRHTA's August 1999 finance plan describes sufficient funding to finance Tren Urbano, based on annual pledged revenues, total debt service, and

¹ Puerto Rico's fiscal year begins July 1 and ends the following June 30.

coverage of total debt service. PRHTA's finance plan is based on detailed annual estimates of the cost to complete the project and on reasonable assumptions of future increases in revenue and cost to complete Tren Urbano.

The \$426 million cost growth for Tren Urbano is due to contract award amounts exceeding estimates; contract options and project scope changes; and contingencies for claims or additional change order activity. Contract awards at amounts higher than budgeted values and exercised options account for \$171.7 million (14 percent) of the cost increases from March 1996 to July 1999.

Although not shown in the finance plan, PRHTA has received a commitment letter from the Department of Transportation to receive \$300 million in credit assistance under the Transportation Infrastructure Finance and Innovation Act (TIFIA). Under the loan commitment, PRHTA would not have to repay principal on the TIFIA loan for the first 7 years of the 35-year term. Because TIFIA interest rates may be lower than rates for issuing long-term bonds, the TIFIA loan may provide more flexibility should PRHTA issue additional long-term debt.

Recommendation

During our review, we observed that Tren Urbano has encountered schedule delays. It is essential to the management and oversight of the project that critical milestone dates be built into the integrated project master schedule. Tren Urbano does not have a master schedule, so we were unable to determine the exact length of the delay. We recommend that FTA ensure that PRHTA develops an integrated project master schedule.

On May 8, 2000, we discussed our finding and recommendation with FTA's Associate Administrator for Program Management. He concurred with our finding and recommendation.

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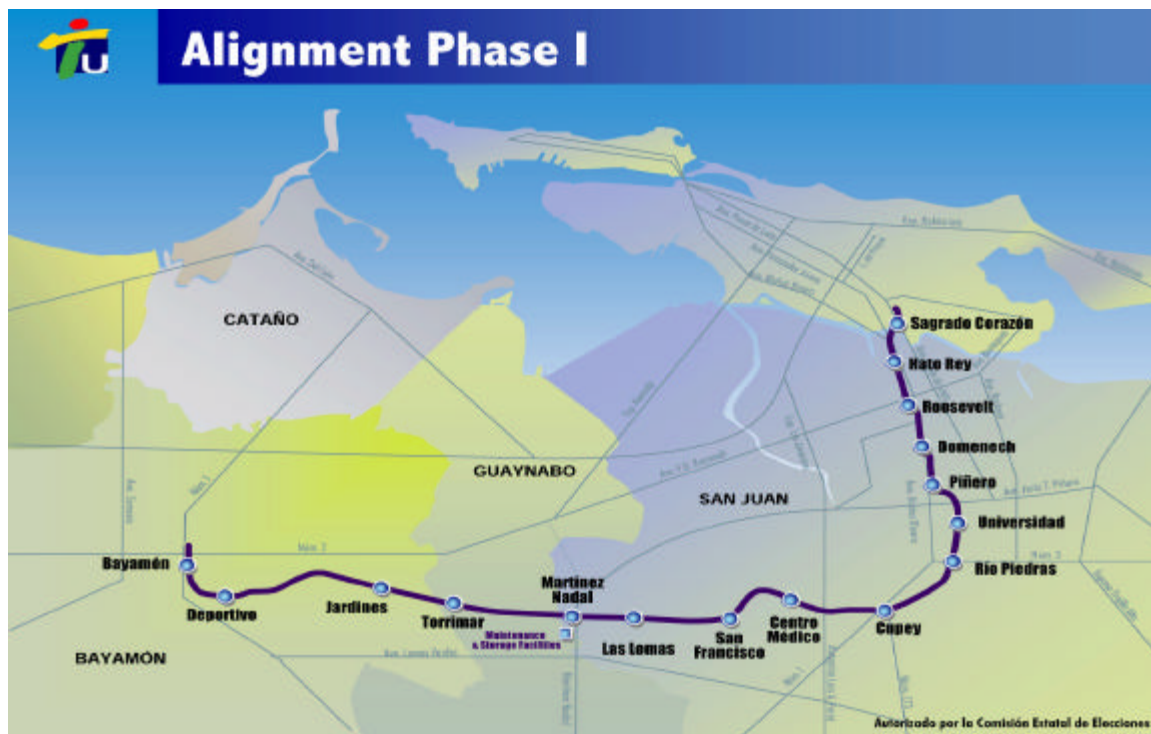
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INTRODUCTION

Background

The Tren Urbano Rail Transit Project (Tren Urbano) is a new, fixed-guideway rail transit system in the San Juan, Puerto Rico metropolitan area. It is approximately 10.7 miles in length, with 16 stations along its route. Tren Urbano is expected to carry over 100,000 passengers daily. The system will begin as elevated tracks in Bayamón, then continue largely at grade through Guaynabo and into Río Pedras, where it will pass through a tunnel section before returning to elevated tracks through Hato Rey. See map below.



Source: Tren Urbano

The Puerto Rico Highway and Transportation Authority (PRHTA) is the project sponsor for Tren Urbano. The Federal Transit Administration (FTA) originally awarded a full funding grant agreement (FFGA) to PRHTA in March 1996 to design and construct Tren Urbano. FTA committed to contribute \$307.4 million in New Start funds toward the total project cost of \$1.250 billion, and PRHTA planned to fund the balance through pledged revenues and related revenue bonds. The revenue operation date was scheduled for July 2001.

Since then, PRHTA has increased its total project cost estimate to \$1.676 billion to reflect contract award amounts exceeding estimates by \$130 million; \$41.7 million for the purchase of 10 additional rail cars and the construction of 2 additional stations; \$204.2 million for scope changes; and \$49.9 million for a larger contingency for claims or other change order activity. PRHTA also added \$22 million to include project costs incurred before 1996. It also revised its revenue operation date to May 2002. The following chart describes changes in cost, funding and schedule in the full funding grant agreement.

Costs, Funding, and Schedule for Tren Urbano Full Funding Grant Agreements (FFGA)		
	1996 FFGA	1999 Amended FFGA
Costs (\$ millions)	\$1,250.3	\$1,676.0
Funding (\$ millions)	\$1,250.3	\$1,676.0 ^{1/}
Federal New Start	\$307.4	\$307.4
Federal Transit Formula		\$141.0
Federal Highway Formula		\$259.9
Subtotal Federal	\$307.4	\$708.3 ^{2/}
Local	\$942.9	\$967.7
Schedule (Revenue Operation Date)	July 2001	May 2002

^{1/}Includes \$22 million related to costs incurred prior to 1996, which PRHTA considers project costs but not part of the FFGA.

^{2/}By agreement with FTA, figure does not include \$4.96 million of Federal funds received prior to 1996.

FTA amended the original grant agreement in July 1999 to recognize the revised cost estimate. The new grant agreement amended the scope, special terms, and conditions for Tren Urbano; recognized the increase in total project costs; authorized the use of urban area transit formula and highway funds for the project; and extended the revenue operation date of the project to May 2002. The amendment increased Federal participation to \$708.3 million, consisting of \$307.4 million in Section 5309 New Start funds, \$141 million in Section 5307 formula funds, and \$259.9 million in Federal Highway Administration (FHWA) formula funds.

The following chart describes Tren Urbano's general features.

Tren Urbano's General Features						
Alignment Sections	Section Contractor	Length (miles)	Stations	Guiderail Construction <u>1/</u>	Completion cost (\$ million)	Percent Complete <u>2/</u>
Bayamón	ICA/Miramar	1.8	2	Elevated	78	65
Río Bayamón	Redondo/Entrecanales	1.1	1	At grade, retained and open cuts	42	52
Torrimar/Las Lomas	Siemens Transit Group	1.7	2	At grade and retained cut	656 <u>3/</u>	46
Villa Nevárez	Redondo/Entrecanales	1.2	1	Elevated	78	43
Centro Médico	Redondo/Entrecanales	1.6	3	Elevated, at grade and retained cut	81	55
Río Piedras	Kiewit Group	1.1	2	Tunnel	279	58
Hato Rey	Entrecanales/Redondo	2.2	5	Elevated	134	33
Totals		10.7	16	Subtotal: Total Project <u>4/</u>	\$1,348 \$1,676	

1/ In a retained cut, bilateral walls hold the soil in place, in an open cut the soil surface is finished at a slope.

2/ As of June 30, 1999.

3/ Also includes cost of systems maintenance building and 74 cars.

4/ This amount includes \$328 million for other costs, such as engineering, project management, right of way, and an art program.

Objectives, Scope, and Methodology

As requested in the Conference Report to the Fiscal Year 2000 Department of Transportation and Related Agencies Appropriation Act (PL 106-69), the Department of Transportation's Office of Inspector General (OIG) has independently analyzed the finance plan for Tren Urbano. The Conference Report directed the project sponsor to provide a plan that clearly delineates the full costs to complete the project and the manner in which the sponsor expects to pay those costs. It then directed FTA to conduct a final review of the plan, accept the plan, and certify to the House and Senate Committees on Appropriations that the fiscal management of the project meets or exceeds accepted U.S. Government standards.

In addition, Congress directed OIG and the General Accounting Office to conduct an independent analysis of the financial plan prepared by the project sponsor and provide such analysis to the House and Senate Committees on Appropriations within 60 days of FTA certifying the plan. FTA has not yet certified the plan.

The Conference Report identified the project sponsor's finance plan as the scope for our independent analysis. We performed this analysis by reviewing supporting documents and reports, and interviewing officials at project, consultant, and Federal offices. We reviewed a PRHTA document entitled "*Tren Urbano Financial Plans with Assumptions August 1999*," and tested numbers in the plan for accuracy and consistency. We verified historical revenue data by comparing Federal and pledged revenue data in the finance plan to data in PRHTA's 1998 and 1999 financial statements. We met with FTA's financial management oversight contractor to discuss FTA's review and report on the finance plan; and we reviewed the contractor's workpapers and other documents. We analyzed status reports of FTA's project management oversight contractor, an independent contractor responsible for monitoring project construction, and earlier PRHTA finance plans to identify changes in cost estimates and actual expenditures to date. OIG's engineer advisor also reviewed project construction documents, toured the project site, and discussed construction schedule issues with the project's construction management team.

We obtained and reviewed various supporting documents. Specifically, we reviewed the official statement for the 1998 PRHTA bond issue, various environmental impact statements, capital improvement program and state transportation and improvement plan reports, and documents in PRHTA's Transportation Infrastructure Finance and Innovation Act (TIFIA) application for credit assistance. We interviewed PRHTA and Tren Urbano officials, and visited

the project site. We met with FTA officials to discuss the full funding grant agreements and their review process, and discussed the project with an FTA management consultant. We met with FHWA officials to discuss the transfer of highway funds to Tren Urbano, and the PRHTA application for TIFIA credit assistance.

Finally, we analyzed the selected alternative scenarios performed by the financial management oversight contractor and Moody's Investors Services new issue reports on PRHTA's 1998 senior and subordinate bond issues to determine whether funding would be sufficient to finance Tren Urbano. We performed our analysis from January through April 2000 in accordance with the Government Auditing Standards of the Comptroller General of the United States.

FINDING AND RECOMMENDATION

PRHTA Finance Plan is Reasonable and Supportable

PRHTA's August 1999 finance plan offers reasonable and supportable funding and cost projections for Tren Urbano, and demonstrates that the project will not adversely impact Puerto Rico's other transportation requirements. The plan estimates that the project will cost \$1.676 billion at completion in 2002, \$426 million over the original 1996 grant agreement budget and \$22 million over the net project cost in the amended 1999 grant agreement budget. PRHTA's finance plan delineates multi-year funding, capital expenditures, and operating expenses for all its transportation activities, including Tren Urbano.

PRHTA has the financial capacity to construct, operate, and maintain Tren Urbano. The finance plan shows dedicated revenues for PRHTA's multiple transportation projects through 2018² and the use of revenue bonds, as necessary, to finance construction projects. Specifically, the plan projects that pledged revenues favorably exceed debt coverage requirements for all PRHTA's transportation projects. The finance plan also provides adequate descriptions of the assumptions underlying revenue projections. PRHTA has a 30-year history of successfully financing construction projects through its use of bond issues, and it has maintained creditworthiness in bond rating projections. Finally, the finance plan illustrates that PRHTA has sufficient revenues to cover operating expenses for its highways, toll roads, Metrobus system, and Tren Urbano.

Likewise, PRHTA's finance plan provides a reasonable and supportable cost estimate for Tren Urbano, including reasonable assumptions of future cost increases. The finance plan identifies annual capital expenditures and operating expenditures for Tren Urbano, as well as similar expenditures for highways, toll roads, and other transportation projects, such as San Juan's Metrobus system.

During our review, we observed that Tren Urbano has encountered contractor disputes resulting from non-conforming conditions. Because PRHTA has signed design-build contracts to construct Tren Urbano, contractors should be responsible for absorbing increased costs resulting from construction problems. These construction problems could result in schedule delays. Tren Urbano is without an integrated project master schedule, so the exact length of any delay is not yet

² Puerto Rico's fiscal year begins July 1 and ends the following June 30.

known. PRHTA's finance plan, however, has sufficient revenues and bonding authority to pay for higher costs that could result from currently projected schedule delays.

Finance Plan Projects Sufficient Resources

PRHTA's finance plan indicates that \$16.3 billion will be available from FY 1999 through FY 2018 to cover \$16.0 billion in capital and operating expenditures for various highway and transportation activities. Tren Urbano, one project addressed in PRHTA's finance plan, will cost \$1.676 billion.

The finance plan and supporting documents indicate that Federal sources will provide \$708.3 million for Tren Urbano, while PRHTA will provide the remaining \$967.7 million from local funds. PRHTA is paying for its local share of Tren Urbano costs through a combination of long-term and short-term bonds and pledged revenues that have been committed to PRHTA by statute.

The major source of local funding for PRHTA emanates from its pledged revenues. The Puerto Rico legislature passed resolutions in 1968 and 1998 to allow PRHTA to use these pledged revenues to fund highway and transportation projects and to use them in paying debt service expenses for revenue bonds that PRHTA may issue. Pledged revenues include:

- gross receipts of a \$0.16 per gallon excise tax on gasoline,
- \$0.04 of the per gallon excise tax on imported motor oils,
- gross receipts from a \$15 per vehicle increase in annual motor vehicle license fees,
- all existing revenue generated by toll facilities operated by PRHTA,
- investment earnings on monies deposited as a result of bond issuance, and
- \$120 million obligated annually to PRHTA from excise taxes on petroleum products.

PRHTA will use these pledged revenues and debt to finance Tren Urbano and other highway and transportation projects. Presently, PRHTA has a balance of \$2.3 billion in bonds secured by revenues under the 1968 resolution, and \$1.18 billion in bonds secured by revenues under the 1998 resolution. PRHTA plans to issue additional debt totaling \$1 billion in fiscal years 2000 and 2003.

PRHTA's financing also projects other funds received from a state infrastructure bank that issues debt of \$75 million (1999-2003), \$60 million in funding from the Puerto Rico Office of Management and Budget (1999-2000), and \$176 million from other internally generated investment income (1999-2018).

PRHTA applied for credit assistance under the TIFIA. On September 24, 1999, PRHTA received a commitment letter from Department of Transportation (DOT) detailing the terms of a \$300 million loan to be used solely for Tren Urbano. According to the loan commitment, PRHTA would not have to repay principal on the TIFIA loan for the first 7 years of the 35-year term. The loan commitment requires that adequate debt service ratios be maintained before the issuance of other bonds with equal security to the TIFIA loan. Because TIFIA interest rates may be lower than rates for issuing long-term bonds, the TIFIA loan may provide more flexibility should PRHTA need to issue additional long-term debt.

FTA's financial management oversight contractor for Tren Urbano determined that PRHTA has the financial capacity to comply with the terms of the amended grant agreement. This analysis parallels other financial reviews, including a revenue bond prospectus developed for PRHTA by underwriters, and analyses of PRHTA's TIFIA application for credit assistance, prepared by DOT-contracted financial analysts.

For example, Moody's Investors Service (MIS) new issue report found that PRHTA's pledged revenues were sufficient to withstand a reasonably severe "oil shock" scenario. The scenario consisted of a stress test of PRHTA's revenue projections to develop a rating for the transportation revenue bonds first issued under the 1998 resolution. The stress scenario assumed that an oil price increase reduced the petroleum excise tax to \$3 per barrel from the current \$4 per barrel and depressed fuel consumption by 20 percent. MIS designed this test to be more severe than Puerto Rico's actual experience during the 1980-1982 economic downturn. The new issue report concluded that debt service coverage levels are likely to remain adequate on both a gross basis and net of operation and maintenance costs.

We determined that PRHTA's August 1999 finance plan describes sufficient funding to finance Tren Urbano, based on annual pledged revenues, total debt service, and coverage of total debt service. We analyzed selected alternative scenarios performed by the financial management oversight contractor, and analyzed municipal credit research reports on PRHTA's 1998 bond issues. Our analysis showed that PRHTA's finance plan is based on detailed annual estimates of the cost to complete the project and on reasonable assumptions of future increases in cost to complete Tren Urbano.

Since 1996, Tren Urbano Cost Estimate Grew \$426 Million

The current \$1.676 billion cost estimate for Tren Urbano is \$426 million greater than the \$1.250 billion cost estimate in the original full funding grant agreement. The \$426 million cost growth is due to contract award amounts exceeding estimates; contract options and project scope changes; and contingencies for claims or additional change order activity. PRHTA also included \$22 million for project costs incurred before 1996.

Contract award values and options account for \$171.7 million (40 percent) of the cost estimate increase. PRHTA based its original cost projection on design estimates that it refined after it received the original full funding grant agreement. Contract awards, reflecting the revised project requirements, were \$130 million greater than the original baseline budget. PRHTA also exercised contract options amounting to \$41.7 million for the procurement of 10 additional rail vehicles (\$20.2 million) and 2 new stations (\$21.5 million). Contract awards at amounts higher than budgeted values and exercised options account for \$171.7 million (14 percent) of the cost increases from March 1996 to July 1999.

PRHTA has also approved \$204.2 million in scope changes, which accounts for 48 percent of the cost estimate increase. For example, the following three Tren Urbano contracts experienced significant growth in scope. PRHTA:

- extended its contract with General Management Architectural Engineering Consulting Services, adding \$85 million for its work.
- added \$72.4 million to a Systems and Test Track Turnkey contract for: additional design, review, and inspection services (\$14.8 million); an automatic fare collection system (\$25 million); other additions (\$29.1 million); and control and monitoring systems for the two additional stations (\$3.5 million).
- added \$15.6 million to a Río Piedras section contract for additional station entrance and platform requirements, including ancillary work for the Universidad Station (see Figure 1) that PRHTA added to the Río Piedras contract.

Figure 1. Construction at the Universidad Station in Rio Piedras.



Source: DOT OIG

Finally, contingencies for claims or additional change order activity account for \$49.9 million (12 percent) of the cost estimate growth. This category includes the settlement of claims and the coverage of unanticipated work not related to changes in scope.

Pending Construction Schedule Issues

PRHTA faces a number of issues that could affect the construction schedule. Construction inspectors have reported a number of nonconforming conditions at several sites, and PRHTA issued a default notice for contract noncompliance to a joint venture contractor involved in these contracts. Tren Urbano officials are pursuing a settlement agreement to remove the contractor and have the remaining contractor complete the work.

The OIG engineering review of these inspection reports observed the following nonconforming conditions that have not yet been fully resolved.

- Construction inspectors found defective spiral reinforcements in 45 columns at two segments (Centro Médico 33, Villa Nevárez 12). The contract design criteria for seismic resistance required that the spiral steel reinforcement be welded at the top and bottom of the columns, but they were not welded. Tren

Urbano officials took steps to require the contractor to meet the seismic criteria. See Figure 2.

Figure 2. Construction of Columns on the Tren Urbano



Source: Tren Urbano

- Construction inspectors found the exterior concrete cover for various columns in the Hato Rey segment was too thin. The contractor built several columns with the reinforcing steel placed too close to the column surface. Inspectors notified the contractor of this nonconformance and the contractor submitted a coating product to cover the defective columns. However, the product failed to meet the warranty specified in the contract. Tren Urbano officials notified the contractor that another product must be submitted for approval.

Tren Urbano is a design-build project, therefore, the contractors should be fully responsible for all corrective measures without increased cost. Nevertheless, PRHTA must address these nonconforming conditions to ensure the safe operation of the system.

PRHTA could also face schedule delays of undetermined length ranging from 2 months to 2 years. It is essential to the management and oversight of the project that critical milestone dates be built into the integrated project master schedule. Tren Urbano does not have a master schedule, so we were unable to determine the exact length of the delay. Tren Urbano officials have promised a copy of the master schedule to the project management oversight contractor, but have not provided one. PRHTA originally projected July 2001 as a baseline revenue operation date. It revised this date to May 2002 in the amended grant agreement. The Secretary of the Puerto Rico Department of Transportation and Public Works stated that the Tren Urbano finance plan currently considers delay risks and has accounted for the interest costs that construction delays could generate.

RECOMMENDATION

During our review, we observed that Tren Urbano has encountered schedule delays. It is essential to the management and oversight of the project that critical milestone dates be built into the integrated project master schedule. Tren Urbano does not have a project master schedule, so we were unable to determine the exact length of the delay. We recommend that FTA ensure that PRHTA develops an integrated project master schedule.

MANAGEMENT COMMENTS

On May 8, 2000, we discussed our finding and recommendation with FTA's Associate Administrator for Program Management. He concurred with our finding and recommendation. We have asked FTA to provide written comments within 30 days of the date of this report and to provide the specific action, with a target date, that FTA intends to take on the recommendation.