
Office of Inspector General

Audit Report

Mega Project Review of

**LOS ANGELES METRO RAIL
RED LINE PROJECT**

Federal Transit Administration

Report Number: TR-1998-154
Date Issued: June 12, 1998





Memorandum

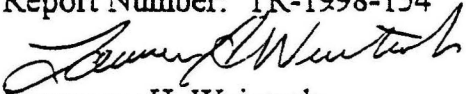
U.S. Department of
Transportation

Office of the Secretary
of Transportation

Office of Inspector General

Subject: ACTION: Report on Review of
Los Angeles Metro Rail Red Line Project
Report Number: TR-1998-154

Date: June 12, 1998

From: 
Lawrence H. Weintrob
Assistant Inspector General for Auditing

Reply to
Attn of:

To: Federal Transit Administrator

We are providing this report for your information and use. FTA's June 11, 1998, verbal comments to our June 5, 1998, draft report were considered in preparing this final report. An executive summary of the report follows this memorandum.

In your comments to our draft report, you concurred with our recommendation. Therefore, the recommendation is considered resolved subject to the followup provisions of Department of Transportation Order 8000.1C. We would appreciate receiving the specific action taken or planned and the target date for the action within 30 calendar days of the date of this final report.

We appreciate the cooperation and assistance provided by your staff during the audit. If I can answer any questions or be of further assistance, please contact me on x61992 or Patricia J. Thompson, Deputy Assistant Inspector General for Surface Transportation, on x60687.

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Attachment

MTA LIBRARY

EXECUTIVE SUMMARY

OIG Mega Project Review of

Los Angeles Metro Rail Red Line

Federal Transit Administration

Objectives

The objectives of our review of the Los Angeles Metro Rail Red Line project were to determine current cost, funding, and schedule status and the reasonableness of related data; and to identify potential financial and schedule risks. The Los Angeles County Metropolitan Transportation Authority (MTA) recently developed a Restructuring Plan to address its financial problems. The Restructuring Plan, which is currently being reviewed by the Federal Transit Administration, will be the subject of a separate OIG review.

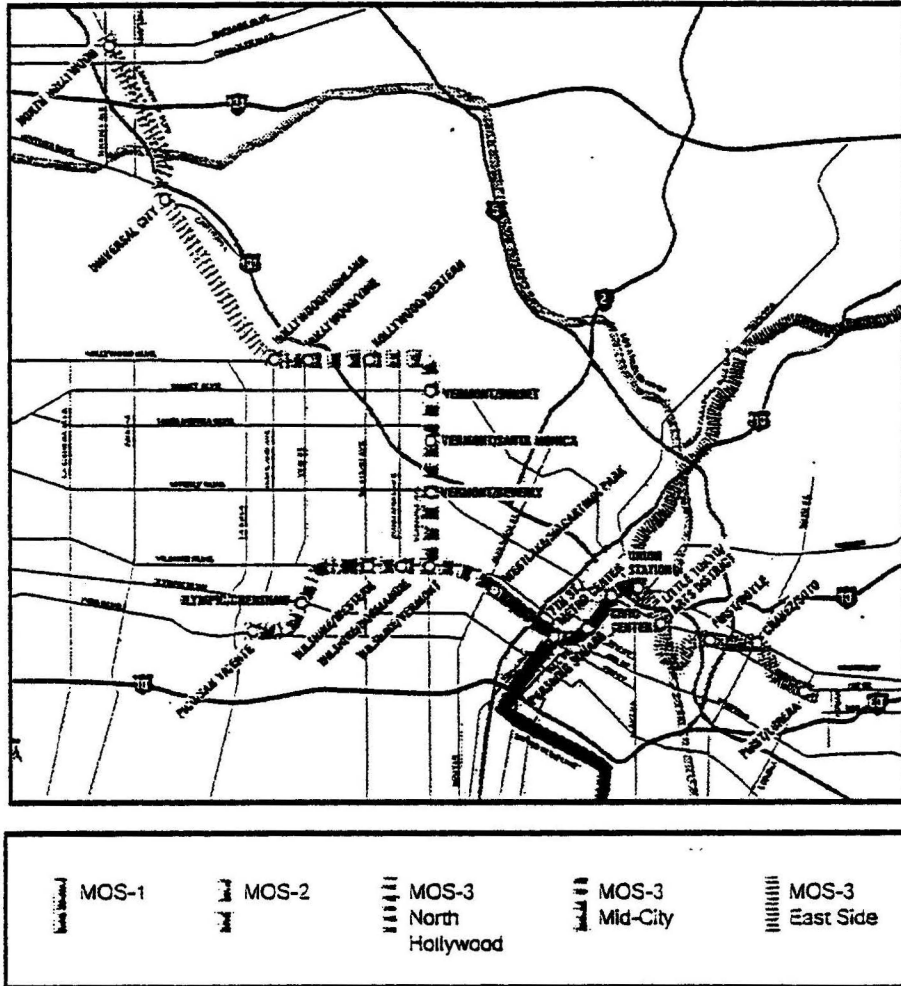
Background

The MTA is responsible for design and construction of the Red Line, a federally funded heavy rail subway project. At \$6.5 billion, the Red Line is the second most costly transportation infrastructure project in the nation, behind the \$11 billion Central Artery/Ted Williams Tunnel project in Boston, Massachusetts. Upon completion, the 23-mile Red Line is expected to provide mass transit service to over 160,000 passengers per day and to assist in achieving regional goals for improved mobility, air quality, and energy conservation. As the map on page ii shows, the Red Line is divided into three minimum operable segments (MOS). The term "MOS" was coined to mean that each segment could be operated as a stand-alone system. The Federal Transit Administration (FTA) planned to fund each MOS separately so that completed segments would be functional, even if other segments would not be built.

The first segment, MOS 1, opened in 1993. The second segment, MOS 2, is scheduled for completion in June 1999. The last segment, MOS 3, is divided into three separate and distinct extensions. One extension, North Hollywood, is scheduled for completion in May 2000. Design and construction on the other two extensions, East Side and Mid-City, have been suspended.

EXECUTIVE SUMMARY

MAP OF LOS ANGELES METRO RED LINE



RED LINE PROJECT STATISTICS

	Totals	On-Going Extensions ^{a/}	Suspended Extensions ^{b/}
Miles of Track	23 miles	17 miles	6 miles
Costs	\$ 6.5 billion	\$ 4.5 billion	\$ 2.0 billion
Costs per Mile	\$278 million/mi.	\$260 million/mi.	\$331 million/mi.
Funding: Federal	\$ 3.1 billion	\$ 2.2 billion	\$ 0.8 billion
State/Local	\$ 3.4 billion	\$ 2.3 billion	\$ 1.1 billion
Completion Dates	N/A	2000	N/A
Estimated Ridership	162,200	132,200	30,000

^{a/} The on-going extensions are MOS 1, MOS 2, and North Hollywood.

^{b/} The suspended extensions are East Side and Mid-City.

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Results

In 1985, the Red Line (comprised of MOS 1, MOS 2, and MOS 3 - North Hollywood) was originally estimated to cost \$3.0 billion. After adding the East Side and Mid-City extensions, the Red Line cost estimate increased in 1995 to a total of \$5.5 billion. The most recent estimate is that the project will now cost nearly \$6.5 billion, or \$278 million per mile. MTA intends to finance the \$6.5 billion Red Line with \$3.1 billion in direct Federal funds and \$3.4 billion in state and local funds. (MTA told us that, as of the date of this report, no Federal Highway Trust Fund formula money was included in the state funds applied to this project.) We found the current cost forecasts and completion dates for MOS 1 (now completed), MOS 2, and North Hollywood were reasonable. However, the cost forecasts and completion dates for the suspended extensions, East Side and Mid-City, are no longer reliable.

Throughout its history, the Red Line has been plagued by financial and technical problems. MTA's lack of an up-to-date, comprehensive finance plan contributed significantly to its fiscal problems. Without a finance plan, MTA management did not recognize in a timely manner the seriousness of its funding shortfalls -- e.g., that the agency did not have sufficient revenues to fund all its competing capital projects and commitments. MTA's problems were compounded by lack of agreement on the part of the MTA's Board of Directors and a lengthy decision-making process regarding the precise alignment of the Red Line, timing of construction, project costs, and funding sources.

Recently, MTA took measures to address some of its financial problems. In August 1997, MTA hired a new Chief Executive Officer (CEO) to put the agency's financial house in order. In January 1998, MTA made a fiscally prudent and sound budgetary decision to suspend construction on two extensions of the Red Line and one extension of a non-federally funded line (the Blue Line to Pasadena). Even with the suspensions, MTA has projected shortfalls in its overall capital and operating budgets -- \$495 million and \$643 million, respectively, through FY 2004.

In the absence of new funding sources, MTA has difficult decisions to make regarding the items that comprise these shortfalls. For example, MTA must decide which items or projects will be cut or postponed without jeopardizing its current level of maintenance on the rail and bus lines. On May 13, 1998, the Board adopted a Restructuring Plan to identify how MTA would finance the cost

EXECUTIVE SUMMARY

to complete the on-going segments of the Red Line; meet its other responsibilities, such as a court-ordered Consent Decree to improve bus service; and fund its operating costs. The Restructuring Plan will be reviewed by OIG after the Federal Transit Administration completes its review.

MOS 1 Is Completed And Operating

The only completed segment of the Red Line, the 4.4-mile MOS 1 segment running through downtown Los Angeles, was originally estimated to be completed in April 1992 at a cost of \$1.25 billion. However, it did not open until January 1993 and cost \$1.45 billion (\$696 million Federal, \$754 million state/local), an increase of 16 percent over the original estimate. FTA's full funding grant for MOS 1 was \$696 million. Consistent with the terms of the Full Funding Grant Agreement (FFGA), FTA did not provide additional funds to pay for the \$200 million cost increase.

MOS 2 Costs, Funding, And Schedule Are Reasonable

MOS 2, originally estimated to be completed in September 1998 at a cost of \$1.45 billion, is now projected to be completed in June 1999 for \$1.74 billion (\$722 million Federal, \$1.01 billion state/local), an increase of 20 percent. We found that if change order trends on this segment continue, currently averaging 11 percent over contract award amounts, change order costs will grow to \$106 million. Because MTA has an adequate allowance to cover these increased costs, MTA's cost forecast of \$1.74 billion will not be affected. With 94 percent of construction completed, MTA is on target to meet the June 1999 date. FTA's full funding grant for MOS 2 was \$722 million. Consistent with the FFGA, FTA did not provide additional funds to pay for the \$290 million cost increase.

MOS 3 Funding Risks Remain

The North Hollywood extension, one of three extensions of MOS 3, was estimated to be completed in May 2000 at a cost of \$1.31 billion. The extension is on schedule and is now projected to cost \$1.34 billion (\$819 million Federal, \$522 million state/local), an increase of only 2 percent. We found that if change order trends on this extension continue at the current rate of 17 percent over contract award amounts, change order costs will grow to \$91 million. MTA's cost forecast includes an adequate allowance to cover these increased costs. Recently (June 2, 1998), the state approved the release of \$134 million of 1998 state

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funding for the North Hollywood extension. MTA will also allocate an additional \$73 million in other state funds to North Hollywood. However, MTA still faces risks for some of its expected funding. For example, Congress could appropriate less funding than MTA expects. In addition, \$35 million in expected city funding is at risk because this funding has not yet been approved. With 64 percent of construction completed and engineering milestones being met, we concluded the May 2000 completion date can be achieved so long as necessary funds remain available.

The cost forecasts for the suspended East Side and Mid-City extensions are no longer reasonable or reliable. MTA recognized that it does not have sufficient matching funds to cover the forecasted costs of \$1.96 billion (\$832 million Federal, \$1.12 billion state/local) and therefore suspended these extensions until at least July 1998. MTA has not decided if or when these extensions will be remobilized and, if re-started, what the designs and alignments will be. As a result, before the East Side and Mid-City extensions are remobilized, the cost forecasts and completion dates will have to be re-estimated. MTA also has the flexibility to cancel these extensions and instead put the funds toward expanding and improving the bus service to these areas.

MTA's Overall Capital And Operating Budget Shortfalls May Affect The Red Line

As of January 1998, MTA had projected shortfalls in both its capital and operating budgets -- \$1.3 billion and \$643 million, respectively, through FY 2004. To address the capital shortfall, MTA suspended work on three rail extensions -- two Red Line extensions (East Side and Mid-City) and the non-federally funded Blue Line to Pasadena. This action reduced MTA's capital shortfall from \$1.3 billion to \$495 million, but did not reduce its operating shortfall. While the capital and operating shortfalls do not affect the on-going construction of the Red Line, they may ultimately reduce MTA's ability to adequately maintain and operate the Red Line as well as the rest of its rail and bus systems. For example, the \$495 million capital shortfall affects projects which are necessary to support MTA's rail and bus operations. The projects include, among other things, maintenance of rail and bus facilities and vehicles. In addition, MTA projected Red Line operating costs of \$377 million through FY 2004 (assuming completion of MOS 2 and North Hollywood). MTA has not yet identified funds to cover all rail and bus operating costs. Therefore, MTA must identify additional funds and/or cut additional costs to address the combined capital and operating shortfall (\$1.1 billion) through

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FY 2004. We note that, on May 28, 1998, MTA released a proposed balanced budget for FY 1999. This shows MTA is on the right track towards addressing its financial problems, although significant challenges remain.

Restructuring Plan Is Intended To Address MTA Budgetary Problems.

To address the capital and operating budget shortfalls, the MTA Board adopted a Restructuring Plan on May 13, 1998. The Restructuring Plan, which is required by Congress, is to specifically identify the funding sources to meet the costs of, among other things, completion of MOS 2 and the North Hollywood extension of MOS 3 and to comply with the court-ordered Consent Decree to improve bus service in Los Angeles. According to the CEO, compliance with the Bus Consent Decree and completion of the Red Line to North Hollywood are MTA's highest priorities. MTA's Restructuring Plan will be the subject of a separate review by OIG. The objective of this review will be to determine whether the Restructuring Plan adequately addresses MTA's financial problems.

Recommendation

Although the Restructuring Plan will serve as the basis for MTA's Finance Plan, this plan needs to be updated on an annual basis.

We recommend that FTA require MTA to keep current its finance plan and to clearly (1) identify and prioritize its various capital and operating costs, (2) identify its revenues by source, and (3) identify the specific revenues that are to cover specific costs.

Management Position

FTA concurred with our recommendation. On June 11, 1998, the FTA Administrator verbally concurred with our recommendation regarding the requirement for MTA to develop and keep current a finance plan. FTA staff also provided verbal technical clarifications that we incorporated into this report.

Office of Inspector General Comments

FTA's verbal concurrence is responsive to our recommendation. We have asked FTA to provide the specific action taken or planned and the target date for the action within 30 calendar days of the date of this final report.

LOS ANGELES METRO RAIL RED LINE

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Exhibits

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- B. Ground Subsidence and Sinkhole Problems
- C. OIG Analysis of Construction Contracts
- D. Detail of Funding Sources - Obligations To Date and Cost To Go for Completed and On-Going Segments/Extensions
- E. MTA Sales Tax Revenue (Propositions A & C) Growth Trend
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Section 1

INTRODUCTION

BACKGROUND

The Los Angeles County Metropolitan Transportation Authority (MTA) is responsible for design and construction of the Red Line, a 23-mile heavy rail subway project serving the city of Los Angeles. As shown on the map on page ii, the Red Line is divided into the following five segments and extensions.

- “Minimum Operable Segment” (MOS) 1 - a 4.4-mile, 5-station, east-west alignment in downtown Los Angeles; completed 1993.
- MOS 2 - a 6.7-mile, 8-station alignment along 2 corridors--the first extends west from MOS 1, and the other runs north off the first corridor then turns west; under construction, scheduled to be completed in June 1999.
- MOS 3 North Hollywood - a 6.3-mile, 3-station alignment extending northwest from MOS 2 to the San Fernando Valley; under construction, scheduled to be completed in May 2000.
- MOS 3 East Side - a 3.6-mile, 4-station alignment extending east from MOS 1 towards East Los Angeles; suspended.
- MOS 3 Mid-City - a 2.3-mile, 2-station alignment extending west from MOS 2 towards Santa Monica; suspended.

Exhibit A is a map of MTA's entire rail system, including the Blue and Green Light Rail Lines.

The Federal, state, and local funding amounts for each segment of the Red Line were identified in full funding grant agreements signed by the Federal Transit Administration (FTA) and MTA from 1986 to 1997.¹ The agreements specified the scope and description of each segment and the estimated total project cost.

¹ For the state and local funding shares. MTA may use Federal Highway Trust Fund formula money. According to MTA, no Highway Trust Fund formula money was used, as of the date of this report, on the Red Line project.

The term "minimum operable segment" (MOS) was coined to mean that each of the segments could be operated as a stand-alone system, even if other segments were not built. The agreements were also intended to ensure that any cost overruns were paid with state or local funds (which may include allowable Federal Highway Trust Fund formula monies passed through the state to MTA). Although the original agreement for MOS 3 had three separate and distinct extensions -- North Hollywood, East Side, and Mid-City -- it was later amended (in 1997) to provide funds only for the North Hollywood extension. This was due to financial and technical problems with the now-suspended East Side and Mid-City extensions. Revised full funding grant agreements have not been signed for the East Side and Mid-City extensions.

While the agreements are called "full funding grant agreements," they really do not provide "full funding" to the project. While the projects receive direct Federal "New Starts" funds and ISTEA funds, the agreements only estimate annual amounts as these funds are subject to annual congressional appropriations -- i.e., each year Congress could appropriate less funds than estimated by the agreement. In fact, Congress did provide less funding for MOS 3 (all three extensions) than MTA anticipated under the agreements. Specifically, from 1993 to 1998, Congress provided only \$572 million, which was \$302 million less than the \$874 million estimated in the agreements. (MOS 1 and MOS 2 received the full amount of Federal funds estimated in the agreements.)

Once completed, the Red Line is expected to provide mass transit service to the core of the Los Angeles area, including needed transportation service to transit-dependent citizens. With the city's congested roadways and overcrowded buses, the Red Line is intended to improve the mobility of people and goods, to conserve energy, and to improve air quality. More specifically, completion of the Red Line is expected to produce the benefit of reducing traffic accidents and deaths on Los Angeles' highways by offering a cost-effective, fast, and non-polluting alternative to highway commuting. According to MTA projections, the Red Line, upon completion of all segments/extensions, is expected to provide transit service to over 160,000 passengers per day. Without the suspended East Side and Mid-City extensions, ridership is projected to be about 130,000 passengers per day. The suspended extensions would provide much needed service to the transit-dependent citizens in those areas.

The following table provides key statistics of the completed and on-going segments/extensions of the Red Line, including miles of track, costs, funding sources, completion dates, and estimated ridership once completed.

**Red Line Project
COMPLETED AND ONGOING
SEGMENTS / EXTENSIONS**

	Totals	MOS 1	MOS 2	North Hollywood
Miles of Track	17.4 miles	4.4 miles	6.7 miles	6.3 miles
Costs	\$4.5 billion	\$1.5 billion	\$1.7 billion	\$1.3 billion
Costs per Mile	\$260 mill./mi.	\$330 mill./mi.	\$259 mill./mi.	\$213 mill./mi.
Funding: Federal	\$ 2.2 billion	\$ 696 million	\$ 722 million	\$ 819 million
State/Local	\$ 2.3 billion	\$ 754 million	\$1,014 million	\$ 522 million
Completion Dates	May 2000	Opened 1993	June 1999	May 2000
Estimated Ridership	132,200	63,900	47,500	20,800

The following table provides key statistics of the suspended extensions of the Red Line, including miles of track, costs, funding sources, completion dates, and estimated ridership once completed.

**Red Line Project
SUSPENDED EXTENSIONS**

	Totals	East Side	Mid-City
Miles of Track	5.9 miles	3.6 miles	2.3 miles
Costs	\$ 2.0 billion	\$ 1.3 billion	\$ 0.7 billion
Costs per Mile	\$331 million/mi.	\$353 million/mi.	\$297 million/mi.
Funding: Federal	\$ 332 million	\$ 569 million	\$ 263 million
State/Local	\$1,123 million	\$ 702 million	\$ 421 million
Completion Dates	N/A	N/A	N/A
Estimated Ridership	30,000	16,500	13,500

OBJECTIVES, SCOPE, AND METHODOLOGY

This review of the Los Angeles Metro Rail Red Line project is one of a series of OIG reviews of DOT's "mega" infrastructure projects. OIG defines mega projects as those projects having potential costs of \$1 billion or more and/or having a high degree of congressional interest. The goal of OIG's mega project reviews is to develop a baseline set of data points on these projects' costs, funding sources, and schedules. We plan to conduct these reviews on an on-going basis. In April 1998, we issued a report on our review of cost and funding issues of another mega

project, the Central Artery/Ted Williams Tunnel Project in Boston (Report No. TR-1998-109). Examples of other mega projects under review include the Federal Highway Administration's Interstate 15 Reconstruction Project in Utah and the Federal Railroad Administration's Northeast Corridor Improvement Program. We expect to issue reports on these projects in the fourth quarter of FY 1998.

The objectives of our mega projects reviews are, for each project: (1) to determine current cost, funding, and schedule status and the reasonableness of the related cost and schedule data, and (2) to identify potential financial and schedule risks. Further, these reviews are designed to benefit all Operating Administrations within the Department through increasing awareness of specific large-dollar projects and sharing of success stories as well as pitfalls to be avoided.

In assessing the current cost, funding, and schedule status of the project, we reviewed and analyzed financial records, engineering estimates, contractual documents, project management oversight reports, and construction status reports. We also evaluated the reasonableness of cost and schedule data provided through careful analysis of these and other supporting documents and discussions with management, including Federal, state, and local officials. For each segment/extension, we verified MTA's obligations to date, i.e., the total of actual contract awards, executed change orders or amendments, and other costs that will result in future expenditures.

We conducted this review from September 1997 through March 1998. Our review covered all project costs incurred and projected through March 1998. The review was conducted at the MTA offices and construction sites in Los Angeles, CA, and at FTA offices in Washington, DC, and San Francisco, CA. We conducted this review in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

Section 2

COST, FUNDING, and SCHEDULE STATUS

The table below provides a summary, by segment/extension, of the Red Line costs, funding, and schedules:

**Summary Of Red Line
COSTS, FUNDING, and SCHEDULES**
(in millions)

Segment/ Extension	Total Costs at Completion ^{a/} by Funding Source			Completion Dates
	Federal	State/ Local	Total	
<i>Completed/ On-going:</i>				
MOS 1	\$ 696	\$ 754	\$1,450	Opened 1993 Scheduled June 1999 Scheduled May 2000
MOS 2	722	1,014	1,736	
North Hollywood	819	522	1,341	
Subtotals	\$2,237	\$2,290	\$4,527	
<i>Suspended: b/</i>				
East Side	\$ 569	\$ 702	\$1,271	N/A
Mid-City	263	421	684	N/A
Subtotals	\$ 832	\$1,123	\$1,955	
Totals	\$3,069	\$3,413	\$6,482	

^{a/} Costs do not include interest and fees on debt.

^{b/} These figures are estimated costs as of the January 1998 suspension date; MTA does not have funding to cover the local share of these costs.

Are Cost Estimates Reasonable? As the above table shows, the current cost estimate for all five Red Line segments/extensions is \$6.5 billion, as of March 31, 1998. Excluding the suspended extensions, the current cost estimate is \$4.5 billion.

We found that the above cost estimates for the completed and on-going segments/extensions – MOS 1, MOS 2, and North Hollywood – are reasonable. For the on-going MOS 2 and North Hollywood extensions, obligations through March 1998 are \$2.6 billion and remaining costs are \$465 million. Due to the uncertainty surrounding the suspended East Side and Mid-City extensions, the

current cost estimates for these extensions should no longer be considered reasonable or reliable.

The table below provides a summary of each Red Line segment/extension's obligations to date and costs to go, as of March 31, 1998.

**SUMMARY OF RED LINE
OBLIGATIONS TO DATE, COST TO GO,
& PERCENT OF COMPLETION**
(in millions)

Segment / Extension	Obligations to Date			Costs To Go			Percent Complete
	Federal	State/ Local	Total	Federal	State/ Local	Total	
<i>Completed</i>							
MOS 1	\$696	\$744	\$1,440	\$ 0	\$ 10	\$ 10	99%
<i>On-going</i>							
MOS 2	\$719	\$860	\$1,579	\$ 3	\$154	\$157	94%
No. Hollywood	791 ^{b/}	242	1,033	28	280	308	64%
Subtotals	\$1,510	\$1,102	\$2,612	\$ 31	\$434	\$465	
<i>Suspended: a/</i>							
East Side	\$108	\$ 60	\$168	\$461	\$642	\$1,103	0%
Mid-City	7	7	14	256	414	670	0%
Subtotals	\$115	\$ 67	\$182	\$717	\$1,056	\$1,773	
Totals	\$2,321	\$1,913	\$4,234	\$748	\$1,500	\$2,248	

a/ Data as of January 1998 suspension date.

b/ To date, Congress has only appropriated \$471 million of the \$681 million of FTA New Starts funding.

Does MTA Have Sufficient Funding? MTA is facing several risks to funding the Red Line. For example, projected local sales tax revenues and Federal funds have and could continue to fall short of estimates. MTA recently developed a Restructuring Plan which is to identify the funding sources to meet the remaining costs of the MOS 2 and North Hollywood extensions (\$465 million), as well as the other commitments, such as the Bus Consent Decree. This Restructuring Plan will be the subject of a separate review by OIG. That review will include a determination as to whether MTA's plan, including funding sources, is reasonable and based on supportable data.

Are Schedules Realistic? MOS 1 was completed and opened in 1993. The current schedules indicate that the MOS 2 and North Hollywood extensions are

scheduled to open in 1999 and 2000, respectively. For MOS 2, based on our review of schedule milestones, project status reports, Project Management Oversight Contractor (PMOC) reports, and our discussions with PMOC and MTA officials, we concluded that the schedule is reasonable. Although one contractor on the North Hollywood extension is currently behind schedule, the OIG engineer concluded this delay can be mitigated and may only result in a minimal schedule slippage. The East Side and Mid-City extensions are suspended until at least July 1998, and no new completion dates have been estimated.

The table below provides, for each segment/extension, the percentages of design completed, project under construction, and construction completed.

**RED LINE PERCENTAGES OF
DESIGN COMPLETED, UNDER CONSTRUCTION, AND
CONSTRUCTION COMPLETED**

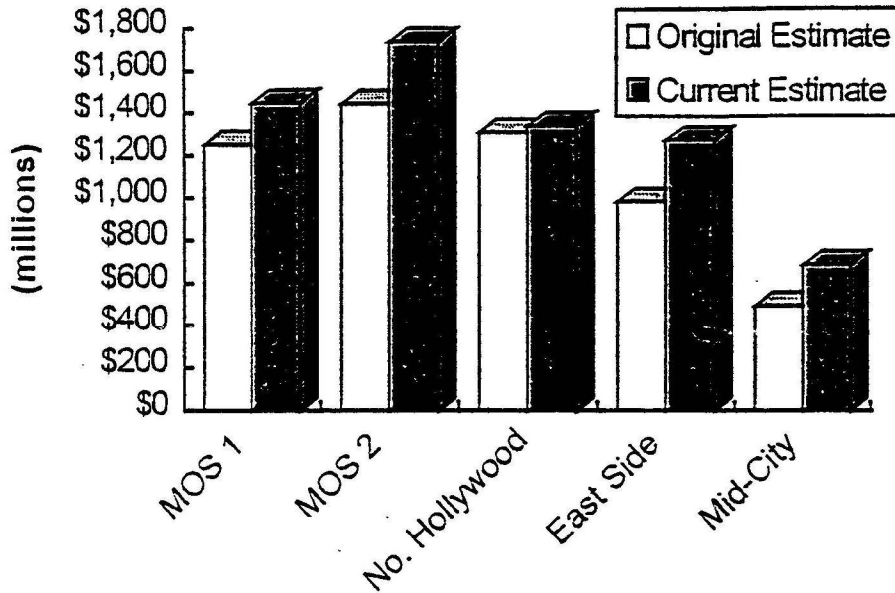
Segment/ Extension	Design Completed	Under Construction	Construction Completed
<i>Completed/On-going:</i>			
MOS 1	100 %	100 %	99 %
MOS 2	99 %	98 %	94 %
North Hollywood	94 %	79 %	64 %
<i>Suspended:</i>			
East Side	87 %	0 %	0 %
Mid-City	0 %	0 %	0 %

PROJECT COSTS

As of March 31, 1998, the cost forecast for the total Red Line project had already increased nearly 18 percent to \$6.5 billion from the original cost estimate of \$5.5 billion.

The chart on the next page displays each Red Line segment/extension's original and current cost estimates.

**RED LINE COST COMPARISONS
ORIGINAL and CURRENT ESTIMATES**



Costs of MOS 1. This segment, which opened for operations in January 1993, cost \$1.5 billion. Project costs increased by \$200 million from the original budget. These increased costs were: \$61 million for hazardous materials, schedule delays, and contractor claims; \$49 million for unanticipated right-of-way purchases; and \$90 million for redesign and changes in scope. MTA paid for all cost increases, as stipulated in the full funding grant agreement. As of March 31, 1998, MTA had obligated \$1.4 billion, or 99 percent of forecast cost. Of this amount, Federal funds of \$696 million have been obligated. Minor construction items still remain. Based on our review of the available records and discussions with MTA officials, we found the final forecasted cost of \$1.5 billion to be reasonable. The table below provides a breakdown of the MOS 1 costs by Federal and state/local funding sources, as of March 31, 1998.

**MOS 1 COSTS
(in millions)**

COSTS	FEDERAL		STATE/LOCAL		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent
To Date	\$696	100%	\$744	99%	\$1,440	99%
To Go	0	0%	10	1%	10	1%
Total	\$696	100%	\$754	100%	\$1,450	100%

Costs of MOS 2. MOS 2 is currently forecast to cost \$1.7 billion. To date, project costs have increased by \$290 million from the original budget. These increases were: \$219 million for project overruns and \$71 million for "enhancements" (items or improvements not in the original scope). The major cost overruns included \$67 million to correct the Hollywood Boulevard sinkhole (see Exhibit B), \$41 million in other construction costs, \$62 million for professional services (e.g., redesign costs), and \$21 million in overhead expenses. MTA paid for all cost increases, as stipulated in the full funding grant agreement. The \$71 million in enhancements included additional station entrances and system upgrades to comply with the Americans with Disabilities Act. As of March 31, 1998, \$1.6 billion (or 91 percent) of forecast cost had been obligated. Of this amount, Federal funds of \$719 million have been obligated.

As a result of our review of MTA financial records and project status reports and discussions we had with MTA officials, we identified about \$96 million of the above costs that, prior to our review, had not been reported to FTA. During our review of project funding, we identified a funding surplus for MOS 2. When we asked what MTA was going to do with the funds, MTA officials told us that the surplus did not really exist, that the surplus was to cover cost overruns. At that time, MTA had not yet quantified the amount of cost overruns, although these unquantified overruns were noted in monthly status reports since March 1997. During our review, MTA computed the cost overruns at \$96 million, accounting for the increase in the cost forecast to the current amount (\$1.736 billion). Our review of project records, including engineer estimates, contract documents, change orders, and cost reports verified the additional cost overruns.

The table below provides a breakdown of the MOS 2 costs by Federal and state/local funding sources, as of March 31, 1998.

MOS 2 COSTS
(in millions)

COSTS	FEDERAL		STATE/LOCAL		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent
To Date	\$719	99.5%	\$860	85%	\$1,579	91%
To Go	3	.5%	154	15%	157	9%
Total	\$722	100%	\$1,014	100%	\$1,736	100%

Our review of MOS 2 costs included a detailed analysis of the engineering estimates of construction contract costs, the contract awards, and the change

orders. Of the 42 MOS 2 construction contracts, we analyzed all 40 of the contracts that have been awarded. MTA's latest cost estimate for the 40 contracts is \$897 million. (The other two contracts total about \$6 million.) The original engineering estimate for the 40 contracts was \$843 million. We found these contracts were awarded at approximately 8 percent (\$69 million) below the engineering estimates. As of March 31, 1998, change orders were averaging 11 percent of contract award amounts. Our analysis included an extrapolation of each contract's change order rate to the end of the contract. We found that, if the change order trend continues, total change orders will be 14 percent of the contract award amount (or \$106 million), which would result in a total cost of \$880 million at completion of all contracts. Thus, MTA's cost forecast of \$897 million allows for this additional increase in change order costs. Given that 94 percent of MOS 2 is completed and that all but two contracts have been awarded, we believe there is little risk of additional change order cost increase beyond MTA's allowance. Exhibit C provides the results of our analysis of contract awards and change orders for MOS 2.

In addition to the total cost estimate (\$1.736 billion), MOS 2 has other potential costs related to contractor lawsuits and claims. One former contractor filed a \$106 million wrongful termination lawsuit. MTA terminated the contractor largely because of the sinkhole and soil subsidence on Hollywood Boulevard (see Exhibit B). MTA filed a countersuit for unspecified damages to be determined at the end of construction, claiming the contractor used substandard materials and billed MTA for materials not used. Further, MTA has potential contractor claims totaling another \$100 million. MTA has currently budgeted \$42 million (this figure is included in the cost forecast) to cover all suits, claims, and other overruns. If MTA loses all suits/claims, project costs would increase by another \$164 million (\$106 million + \$100 million - \$42 million).

Costs of North Hollywood Portion of MOS 3. This portion is forecast to cost \$1.3 billion. Project costs increased by \$30 million from the original budget. As of March 31, 1998, MTA had obligated \$1.0 billion, or 77 percent of forecast cost. The current cost estimate includes a recent savings of \$7 million due to eliminating two "crossover" tunnels between the Hollywood/Highland and Universal City stations. According to project and PMOC officials, the crossover tunnels were a convenience and not a safety necessity, since other crossover tunnels were located within a reasonable distance. Deleting the tunnels also avoided potential cost increases of an additional \$20 million due to design changes associated with the crossover.

The table below provides a breakdown of the North Hollywood costs by Federal and state/local funding sources, as of March 31, 1998.

**NORTH HOLLYWOOD
COST**
(in millions)

COSTS	FEDERAL		STATE/LOCAL		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent
To Date	\$791 ^{a/}	97%	\$242	46%	\$1,033	77%
To Go	28	3%	280	54%	308	23%
Total	\$819	100%	\$522	100%	\$1,341	100%

^{a/} To date, Congress has only appropriated \$471 million of the \$681 million of FTA New Starts funding.

Our review of North Hollywood costs included a detailed analysis of the engineering estimates of construction contract costs, contract awards, and change orders. Of the 34 North Hollywood construction contracts, we analyzed all 27 of the contracts that have been awarded. MTA's latest cost estimate for the 27 contracts is \$561 million. (The other seven contracts total about \$43 million.) The original engineering estimate for the 27 contracts was \$473 million. We found that these contracts were awarded at approximately 10 percent (\$45 million) below the engineering estimates. Our detailed analysis of change orders disclosed that, as of March 31, 1998, change orders were averaging 17 percent of contract award amounts. Our analysis included an extrapolation of each contract's change order rate to the end of the contract. We found that, if the change order trend continues, total change orders will be 21 percent of the contract award amount (or \$91 million), which would result in a total cost of \$519 million at completion of all contracts. Thus, MTA's cost forecast of \$561 million allows for this additional increase in change order costs. Given that most of the major construction work (such as tunneling through the Hollywood Hills) on this extension is complete and that all but seven minor contracts have been awarded, we believe there is little risk of additional change order cost increase beyond MTA's allowances. However, as discussed in the "Project Funding" section of this report (starting on page 13), North Hollywood costs could increase if funding shortfalls or other unforeseen problems cause significant construction delays. Exhibit C provides the results of our analysis of contract awards and change orders for North Hollywood.

Costs of East Side. This suspended extension was forecast at \$1.3 billion. The forecast increased by \$291 million from the original budget, mainly due to project delays, tunnel-boring costs, and overhead expenses. As of January 31, 1998 (the date of the best available data due to the suspension), MTA had obligated

\$168 million, or 13 percent of forecast cost. MTA estimated costs to continue work on the East Side extension to a reasonable suspension point would be \$13 million. This figure includes some "demobilization" costs (e.g., storage of track and potential contract termination fees); however, most of these expenses are for normal project requirements (e.g., design work, environmental remediation, land acquisition, and demolition activities). In addition, the cost forecast did not include costs related to remobilization after the suspension period. Due to the above, the East Side cost forecast is no longer reliable. Furthermore, the CEO indicated that, during the suspension, MTA would re-visit the entire design, scope, and alignment of the project to determine the best alternatives upon remobilization.

The table below provides a breakdown of the East Side costs by Federal and state/local funding sources, as of March 31, 1998.

EAST SIDE COST

(in millions)

COSTS	FEDERAL		STATE/LOCAL		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent
To Date	\$108	19%	\$60	9%	\$168	13%
To Go	461	81%	642	91%	1,103	87%
Total	\$569	100%	\$702	100%	\$1,271	100%

Costs of Mid-City. This suspended extension was forecast at \$684 million, which was an increase of \$193 million from the original budget. The increase was mostly due to project delays caused by environmental obstacles, such as methane gas and hydrogen sulfide gas, found in the corridor alignment. As of January 31, 1998 (date of best available data), MTA had obligated \$14 million, or 2 percent of forecast cost. MTA estimated that costs to advance work to a reasonable suspension point would be \$2 million (for completion of an environmental study and potential contract termination fees). The cost forecast did not include costs to remobilize. Due to the above, the cost estimate for Mid-City is not reliable. As with the East Side extension, the CEO indicated MTA would re-visit the entire design, scope, and alignment of the project to determine the best alternatives upon remobilization.

The table below provides a breakdown of the Mid-City costs by Federal and state/local funding sources, as of March 31, 1998.

MID-CITY COSTS
(in millions)

COSTS	FEDERAL		STATE/LOCAL		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent
To Date	\$7	3%	\$7	2%	\$14	2%
To Go	256	97%	414	98%	670	98%
Total	\$263	100%	\$421	100%	\$684	100%

General Costs - Interest on Debt. Since 1986, MTA had sold over \$6 billion in debt instruments (e.g., sales tax revenue bonds) for all its capital projects and operating expenses. As of April 30, 1998, \$3.4 billion is currently outstanding.

MTA accounted for the cost of debt (interest and fees) in a separate debt service fund. MTA does not allocate its debt service costs among the individual capital projects. Consequently, we were unable to determine the actual cost of debt related to the Red Line. [See the section of this report on "Local Funds - Sales Tax Revenue Bonds" (page 15) for a further discussion of this issue.]

PROJECT FUNDING

Prior to suspending the three rail extensions, MTA's overall capital funding shortfall (for all its capital projects) would have totaled \$1.3 billion through FY 2004. The shortfall was comprised of \$807 million for rail construction, \$377 million for bus capital, \$71 million for rail capital, and \$47 million for other projects. The \$807 million rail construction shortfall was comprised of the Red Line shortfall of \$578 million and the Blue Line to Pasadena shortfall of \$229 million. (See Section 3 starting on page 20 for a discussion of MTA's overall capital and operating shortfalls.) For the Red Line, the shortfall climbs to \$924 million in FY 2008, which was the latest estimated completion date of the last Red Line extension (Mid-City).

The table below provides MTA's latest (as of March 31, 1998) estimate of the Red Line's funding by source and demonstrates the Red Line capital shortfall of \$924 million, all of which is related to the suspended extensions. The table also shows that MTA intends to make available the necessary funds to complete the MOS 2 and North Hollywood extensions. The North Hollywood extension has a funding reserve of \$29 million to cover any unforeseen cost overruns or funding shortfalls.

**Summary of Red Line
CAPITAL FUNDING BY SOURCE**
(in millions)

Segment/ Extension	Federal	State	Local	Total	Costs	Surplus/ (Shortfall)
<i>Completed/ On-going</i>						
MOS 1	\$696	\$228	\$526	\$1,450	\$1,450	\$0
MOS 2	722	133	881	1,736	1,736	0
North Hollywood	819	342	209	1,370 a/	1,341	29
Subtotals	\$2,237	\$703	\$1,616	\$4,556	\$4,527	\$29
<i>Suspended</i>						
East Side	\$569	\$66	\$56	\$691	\$1,261	(580)
Mid-City	263	40	8	311	684	(373)
Subtotals	\$832	\$106	\$64	\$1,002	\$1,955	(\$953)
Totals	\$3,069	\$809	\$1,680	\$5,558	\$6,482	(\$924)

a/ This figure includes \$29 million in funding reserves.

The chart below depicts each segment/extension's funding and costs, and the resulting surplus/shortfalls.

**CAPITAL FUNDING
by Segment/Extension**

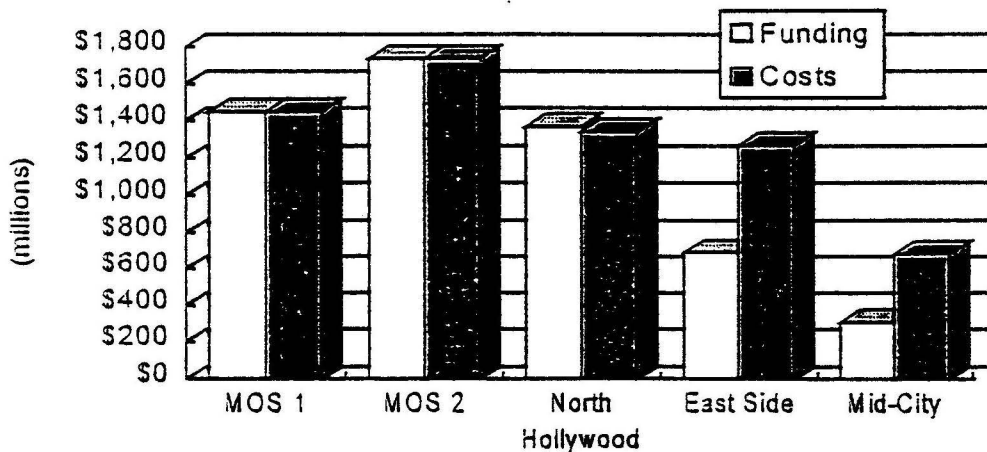


Exhibit D provides a further breakdown of the various Federal, state, and local funding components for each of the completed and on-going Red Line segments/extensions.

FUNDING SHORTFALLS AND RISKS

Funding shortfalls are the primary cause of MTA's capital budget deficit. A discussion of the shortfalls and the related funding risks follows.

Local Funds - Sales Tax Revenue Bonds. MTA finances the major portion of its local share of capital projects and operating expenses through the sale of local sales tax revenue bonds. MTA's revenue bonds are backed by the proceeds from two sales tax propositions approved by Los Angeles County voters. In 1980, Proposition A provided funding from a half-cent sales tax increase for a regional rail transit system and other transportation improvements. In 1990, Proposition C provided funding from another half-cent sales tax increase for expansion and improvements to the transit system.

Propositions A and C placed certain restrictions on the use of sales tax proceeds. For example, under Proposition A, only 35 percent of the sales tax revenue is eligible to be spent on rail construction and capital expenses. Proposition C allocated sales tax revenue as follows: discretionary use (40 percent), transit related highway improvements, such as park-and-ride facilities (25 percent), local return program to area cities for public transit (20 percent), commuter rail and transit centers (10 percent), and rail and bus security (5 percent). Exhibit D discloses the amounts of these allocated revenues applied to each on-going extension of the Red Line.

Prior to October 1997, MTA used a forecasted annual growth rate of 7 percent to project its sales tax revenues. In October 1997, MTA's Chief Executive Officer disclosed that the 7-percent rate was unrealistic and that a 4- to 5-percent growth rate was more reasonable. This change reduced MTA's total sales tax revenue projections through FY 2004 from \$9.6 billion to only \$8.7 billion. With the reduced sales tax revenue base, MTA will not be able to raise as much funding, via the sale of bonds, as previously expected.

Furthermore, in February 1998, a major bond rating service gave MTA a "negative outlook." Such an opinion is generally a precursor to an actual lower bond rating. If MTA does not improve its financial situation by the next review, its bond rating will probably be lowered. A lower bond rating would likely result in MTA having to pay higher interest on its bonds to attract investors. MTA's Manager of Long Range Planning told us that the agency conducted a bond sale shortly after the negative outlook was issued, and the bonds sold with no impact on cost.

Although we agree that a 4- to 5-percent growth rate is more reasonable than 7 percent, we found the actual annual sales tax growth rate since FY 1992 was only about 3 percent, as shown in Exhibit E. If this trend continues on a long-term basis, MTA's assumption of 4- to 5-percent growth will still overstate the agency's revenues.

Local Funds - City. MTA also has a funding agreement with the City of Los Angeles. However, these funds are at risk. The City agreed to provide \$200 million for the North Hollywood, East Side, and Mid-City extensions. Through FY 1997, the City contributed about \$55 million of the \$90 million portion allocated to the North Hollywood extension. MTA expects to receive the remaining \$35 million in FY 2000, pending re-negotiation of the agreement. Receipt of the \$110 million allocated to the East Side and Mid-City extensions was contingent on, among other things, MTA meeting certain milestones. For example, the FY 1998 milestone for the East Side extension was to start construction; and the milestone for the Mid-City extension was completion of an environmental study. Since MTA failed to meet these milestones, the City reduced funding by \$110 million. These funds are on hold, pending re-negotiation of the agreement and decisions as to the future of the suspended extensions.

Federal and State Funds. MTA received less Federal funds than were originally estimated in the full funding grant agreements with FTA. The agreements stipulate that estimated funding amounts are subject to the annual Federal appropriations -- i.e., Congress can appropriate less money than the agreements provide. In fact, from 1993 to 1998, Congress provided only \$572 million in funds for the Red Line, which was \$302 million less than the \$874 million estimated in the agreements. In addition, Federal funding for the East Side and Mid-City extensions was suspended in 1997 until MTA produces its Restructuring Plan.

A state legislature action also affected the Red Line. The state required funds to be diverted from the bus program to county health programs. Consequently, MTA transferred \$50 million in state funds from the Red Line to its bus program.

Specific Red Line Funding Risks. In addition to general issues and risks that affect all of MTA's capital projects, each of the remaining Red Line segments/extensions is facing its own particular problems or risks.

As mentioned earlier, MTA's budget for MOS 2 includes \$42 million to cover potential cost increases -- e.g., pending lawsuits, contractor claims, and cost overruns. If these suits, claims, and overruns exceed the \$42 million, the MOS 2

budget is at risk of a shortfall and additional funds will need to be identified. We also note that the remaining \$2.5 million of Federal funds has not been, and may not be, released by FTA.

Regarding the North Hollywood extension, the state recently (June 2, 1998) approved the release of \$134 million of state funding for the North Hollywood extension. MTA will also allocate an additional \$73 million in other state funds to North Hollywood. However, MTA still faces risks for some of its expected funding. For example, Congress has and could continue to appropriate less Federal funding than MTA expects. In addition, the \$35 million in additional city funding is at risk because this funding has not yet been approved.

Regarding the suspended East Side and Mid-City extensions, MTA acknowledged that it does not have the funds to pay the local share for either of these extensions. Therefore, completion of these extensions remains a high risk until new funding sources can be identified and quantified. Again, the Restructuring Plan is expected to provide MTA's alternatives for addressing these suspensions.

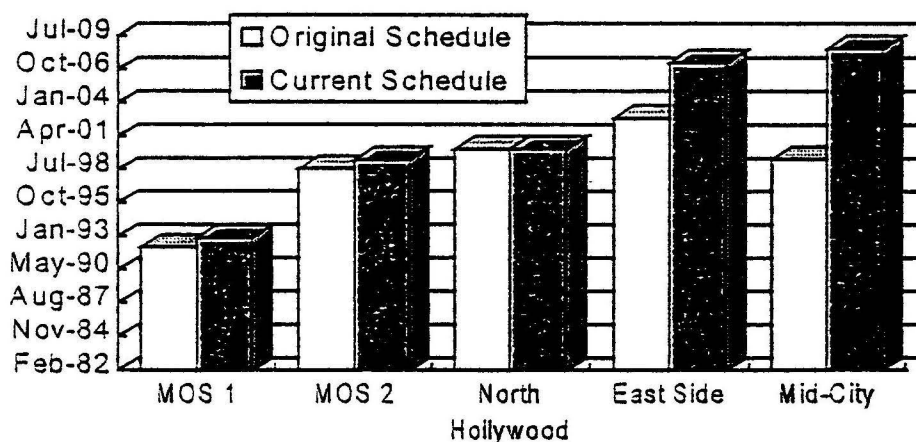
PROJECT SCHEDULES

Our review disclosed the schedules for completion of the MOS 2 and North Hollywood extensions -- June 1999 and May 2000, respectively -- are reasonable. The East Side and Mid-City extensions are suspended for at least 6 months, and no new completion dates have been estimated. MOS 1 was completed and opened in 1993.

The table and chart on the next page provide a summary of scheduled completion dates for each segment/extension.

Summary of Red Line SCHEDULED COMPLETION DATES

Segment/ Extension	Original Schedule	Current Schedule
MOS 1	April 1992	Completed 1993
MOS 2	September 1998	June 1999
North Hollywood	May 2000	May 2000
East Side	November 2002	May 2007
Mid-City	July 1999	July 2008



MOS 1. This segment opened for operation in January 1993, 9 months after the original scheduled completion date. The delay was caused by redesign of the alignment to avoid hazardous materials.

MOS 2. MOS 2 is comprised of two corridors -- Wilshire and Vermont/Hollywood. The Wilshire corridor opened for operations in July 1996. Design of the Vermont/Hollywood corridor is 99 percent complete, and construction is 94 percent complete. This extension has already experienced delays of 9 months. The schedule was first revised to December 1998, then recently to June 1999. The schedule delays were due to the time necessary to correct problems associated with: (1) water damage to electrical systems in the Vermont/Sunset station, (2) settlement of a fire and emergency management system contract dispute, and (3) award of a ventilation system contract. Our review of schedule milestones and management oversight reports indicates MTA is on target to meet the June 1999 completion date.

North Hollywood. The current completion date for the North Hollywood extension is May 2000 (same as the original date). Design is 94 percent complete and construction is 64 percent complete. Our review disclosed that, although one tunnel contractor is 7 months behind schedule, MTA has developed alternatives to mitigate this delay. OIG's engineer reviewed construction documents and discussed the schedule with MTA and PMOC officials. The OIG engineer concluded that this delay can be mitigated and may only result in a minimal slippage, if any, to the schedule. In commenting on a draft of this report, FTA correctly pointed out that the full funding grant agreement indicates that this extension is to be completed no later than December 2000.

East Side. Design was 87 percent complete and construction had not started. Completion was recently forecasted for May 2007. However, due to the suspension of work and funding shortages, the schedule has a high risk of not meeting the target date.

Mid-City. Originally this extension was to run west under Wilshire Boulevard. However, due to large concentrations of methane gas in the area, the alignment was changed to its current position. In December 1993, hydrogen sulfide gas was found in the new alignment, resulting in the schedule being extended to July 2008. With the January 1998 suspension of work (as well as funding shortages and remaining potential environmental obstacles), the schedule has a high risk of not meeting the target date.

Section 3

MTA OVERALL CAPITAL & OPERATING BUDGETS

The MTA has two major budgets -- a capital budget and an operating budget. The capital budget includes the costs and funding for several capital projects and commitments, in addition to construction of the Red Line. These capital items include replacement of aging buses, a funding commitment to the Alameda Corridor, bus and rail capital maintenance expenses, and construction of the Metro Rail Blue Line to Pasadena. MTA's operating budget includes the costs and funding of the daily operating expenses of its bus and rail systems.

MTA has projected shortfalls in the capital and operating budgets of \$1.3 billion and \$643 million, respectively, for the 7-year period ending in FY 2004. If not adequately addressed, the significant funding shortfalls in both of these budgets will directly impact the viability of the Red Line as well as the other rail and bus lines.

The MTA recognized that it did not have sufficient funding to complete and pay for all the capital projects it had underway. As a result, in January 1998, MTA made a fiscally prudent and sound budgetary decision to suspend design and construction of two Red Line extensions (East Side and Mid-City) and the non-federally funded Pasadena Blue Line. However, the suspensions of the rail lines did not eliminate all of MTA's funding problems. Excluding the suspended rail lines, a significant deficit of \$495 million remains in the agency's projected capital budget through FY 2004. The suspensions had basically no impact on the operating budget deficit.

Remaining Capital Shortfall Requires Difficult Decisions

Prior to suspending the three rail extensions, MTA's overall capital funding shortfall would have totaled \$1.3 billion through FY 2004. The shortfall was comprised of \$807 million for rail construction, \$377 million for bus capital, \$71 million for rail capital, and \$47 million for other projects. The \$807 million rail construction shortfall was comprised of the Red Line shortfall of \$578 million and the Blue Line to Pasadena shortfall of \$229 million. The remaining capital shortfall, after subtracting out the effect of the rail suspensions, is \$495 million. The table below depicts MTA's overall capital budget through FY 2004, including the suspended rail lines.

MTA'S OVERALL CAPITAL BUDGET

for the period FYs 1998 – 2004

(in millions)

Project	Funding	Costs	Surplus / (Shortfall)
<i>Rail:</i>			
Red Line Construction	\$ 1,632	\$ 2,210	(\$ 578)
Blue Line Construction	388	617	(229)
Other Rail Capital (e.g., Rail Cars)	218	289	(71)
<i>Bus:</i>			
Bus Replacement Program <i>a/</i>	550	550	0
Other Bus Capital (e.g., Facilities)	201	578	(377)
Alameda Corridor	294	294	0
Other Capital Projects	86	133	(47)
Totals	\$ 3,369	\$ 4,671	(\$ 1,302)

a/ Includes capital cost of compliance with the bus consent decree.

The table below depicts MTA's overall capital budget through FY 2004, excluding the suspended rail lines.

MTA'S OVERALL CAPITAL BUDGET

Excluding Suspended Extensions

For the period FYs 1998 – 2004

(in millions)

Project	Funding	Costs	Surplus / (Shortfall)
<i>Rail:</i>			
Red Line Construction	\$ 1,097	\$ 1,097	\$ 0
Blue Line Construction	0	0	0
Other Rail Capital (e.g., Rail Cars)	218	289	(71)
<i>Bus:</i>			
Bus Replacement Program <i>a/</i>	550	550	0
Other Bus Capital (e.g., Facilities)	201	578	(377)
Alameda Corridor	294	294	0
Other Capital Projects	86	133	(47)
Totals	\$ 2,446	\$ 2,941	(\$ 495)

a/ Includes capital cost of compliance with the bus consent decree.

In the absence of identifying new capital funding sources, MTA has difficult decisions to make regarding the capital items that comprise the \$495 million

shortfall. For example, MTA must decide which capital items will be cut or postponed without jeopardizing its current level of maintenance on rail and bus lines. The Restructuring Plan, which will be reviewed by OIG, is to provide MTA's plans and/or processes for addressing this shortfall.

The various commitments and projects that make up MTA's capital budget are competing with the Red Line for funding. The following descriptions include related cost data that we were able to obtain during our review of the Red Line project.

Bus Consent Decree & Bus Replacement Program. In an October 1996 Bus Consent Decree, which was ordered by the U.S. District Court, MTA agreed to establish an improvement plan to reduce overcrowding and expand bus service. The Consent Decree settled litigation filed by multiple parties in response to MTA's plans to implement a fare increase. As a result of Consent Decree requirements, MTA increased spending on its bus program. Further, MTA planned to spend \$550 million in capital costs for its on-going bus replacement program and Consent Decree requirements. MTA officials declined to break out the capital costs directly attributable to the Consent Decree. MTA made compliance with the Consent Decree a top priority and identified funding for the entire \$550 million cost.

Metro Rail Blue Line to Pasadena. This 13.6-mile, 13-station, light rail project extends north from Union Station to Pasadena. MTA was funding the \$804 million project entirely with state and local funds. This project was suspended in January 1998 for at least 6 months.

Alameda Corridor. This 20-mile, high-capacity freight rail line will connect the ports of Los Angeles and Long Beach to the regional rail hub near downtown Los Angeles. The Alameda Corridor Transportation Authority (ACTA) will develop, finance, build, and operate this \$2 billion project. MTA has a funding commitment to provide a total of \$355 million: \$206 million in pass-through state funds, \$72 million in pass-through Federal funds, and \$77 million in local funds (from sale of bonds). The remainder of the costs (\$1.655 billion) will be financed with \$785 million in ACTA revenue bonds, a \$400 million loan from DOT, \$391 million from the ports, and \$79 million from interest on deposited funds. The project is scheduled for completion in 2001. Through FY 1997, MTA had provided a total of \$61 million, leaving a remainder of \$294 million to be paid in FYs 1998 - 2001. MTA has identified funding for the remainder of these costs.

Other Capital Projects. MTA had a \$495 million funding shortfall through FY 2004 for other capital projects--expenses of \$1.0 billion but funding of only \$505 million. The bus capital program totals \$578 million for items such as bus maintenance facilities and a natural gas fueling facility. (These costs are in addition to the above Consent Decree and bus replacement costs.) Rail capital costs of \$289 million include rail car purchases, rail car maintenance, operation facilities, and rail support equipment. Finally, MTA had other capital costs of \$133 million for items such as computer and telephone system requirements and the remaining costs of the MTA Headquarters Building.

Operating Budget Shortfall Threatens Viability Of Entire System

The operating shortfall of \$643 million consists of \$104 million for rail operations and \$539 million for bus operations. MTA needs to achieve savings of over \$100 million annually over the next 6 years to erase the operating deficit. If these savings are not realized, or if additional local funding is not identified, MTA is at risk of not having the necessary resources to operate all of its bus and rail systems. The following chart depicts the shortfall in the MTA operating budget.

MTA'S OVERALL OPERATING BUDGET
for the period FYs 1998 - 2004
(in millions)

Category	Revenues	Expenses	Surplus/ (Deficit)
Rail	\$ 825	\$ 929	(\$ 104)
Bus ^{a/}	4,363	4,902	(539)
Totals	\$ 5,188	\$ 5,831	(\$ 643)

^{a/} Includes operating cost of the bus consent decree.

It should be noted that MTA identified enough cost savings and additional revenue to release (on May 28, 1998) a proposed balanced budget for FY 1999. MTA had estimated a \$90 million deficit in November 1997. This shows that MTA is on the right track towards addressing its fiscal problems, although significant challenges still remain.

The following section describes related operating cost data that we were able to obtain during our review of the Red Line project.

Metro Rail Red Line. MTA currently operates MOS 1 and the Wilshire Corridor of MOS 2. In addition, MTA plans to be operating the remainder of MOS 2 by 1999 and the North Hollywood extension by 2000. MTA estimates the cost to operate the Red Line through FY 2004 will be \$377 million. Further, the Red Line's share of the overall operating shortfall through 2004 is currently projected to be \$36 million.

Metro Rail Blue Line to Long Beach. This 22-mile, 22-station, light rail line extends south from downtown Los Angeles to downtown Long Beach. It connects with the Red Line on MOS 1. The \$877 million project, which opened in 1990, was funded entirely with state and local funds. The FY 1998 operating budget for the Long Beach Blue Line was \$34.7 million.

Metro Rail Green Line. This 20-mile, 14-station, light rail line runs east-west, connects with the Long Beach Blue Line, and stops just short of Los Angeles International Airport. The \$712 million project, which opened in 1995, was funded entirely with state and local funds. The FY 1998 operating budget for the Green Line was \$21.4 million.

MetroLink. The Red Line connects at Union Station with MetroLink, a commuter train system operated by the Southern California Regional Rail Authority (SCRRA). MetroLink serves commuters in six area counties. MTA, as a member of SCRRA, provided about \$24 million (60 percent) of MetroLink's FY 1998 operating budget.

Bus Operating Costs. MTA operates a total fleet of over 2,000 buses to provide bus service in Los Angeles County. In addition to the normal operating costs of providing this fleet, the Bus Consent Decree required MTA to improve the load factor (ratio of passengers to seats) on its buses and expand service. The operating costs to comply with the Consent Decree are included in the operating budget of \$4.9 billion. Again, MTA declined to break out the costs directly attributable to the Consent Decree.

A map of MTA's entire rail system is provided as Exhibit A.

Section 4

**OIG RECOMMENDATION AND
MANAGEMENT POSITION**

Recommendation

MTA's Restructuring Plan will serve as the basis for MTA's Finance Plan, however this plan needs to be updated on an annual basis.

We recommend that FTA require MTA to keep current its finance plan and to clearly (1) identify and prioritize its various capital and operating costs, (2) identify its revenues by source, and (3) identify the specific revenues that are to cover specific costs.

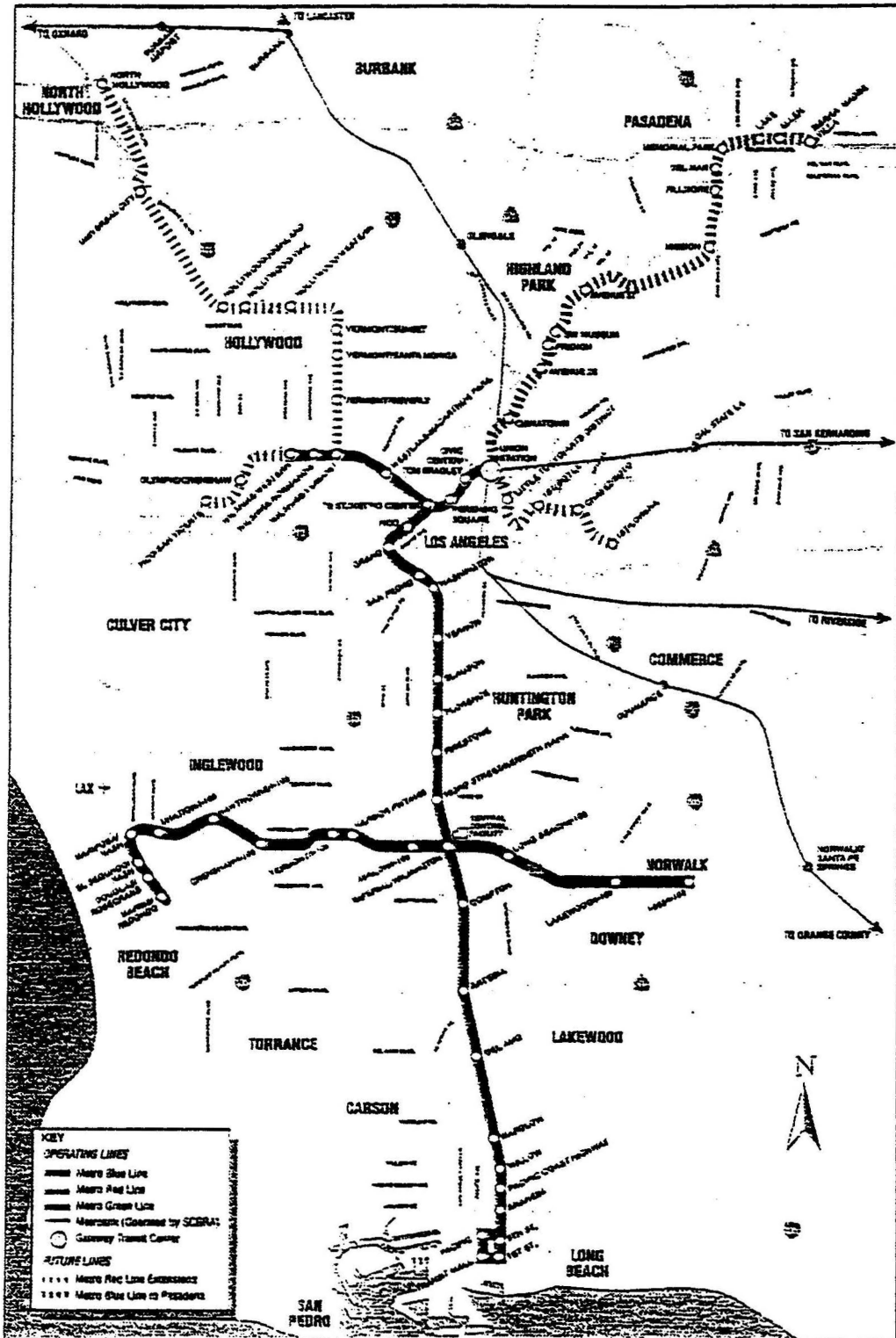
Management Position

FTA concurred with our recommendation. On June 11, 1998, the FTA Administrator verbally concurred with our recommendation regarding the requirement for MTA to develop and keep current a finance plan. FTA staff also provided verbal technical clarifications that we incorporated into this report.

OIG Comments

FTA's verbal concurrence is responsive to our report's recommendation. We have asked FTA to provide the specific action taken or planned and the target date for the action within 30 calendar days of the date of this final report.

MAP OF LA METRO RAIL SYSTEM



LOS ANGELES METRO RAIL RED LINE

**GROUND SUBSIDENCE AND
SINKHOLE PROBLEMS**

Hollywood Boulevard Subsidence. In 1994, shifting soil during construction of MOS 2 on Hollywood Boulevard caused the street and surrounding structures to subside as much as 10 inches. The soil movement was allegedly caused by the tunnel contractor using incorrect bracing methods during his tunneling operations. Property owners and merchants in the area of the subsidence filed lawsuits against MTA claiming cracked floors and other damage. MTA reached settlements with the owners and merchants totaling over \$11 million. The settlements were covered by insurance funds.

Hollywood Boulevard Sinkhole. In 1995, a 70-foot sinkhole formed on MOS 2 along Hollywood Boulevard during contractor correction of a tunnel misalignment. MTA subsequently terminated the contractor for default. Tunneling problems were rectified through new contracts. As stated earlier, MTA is currently in litigation with the defaulted contractor, who filed a \$106 million wrongful termination lawsuit. In response, MTA filed a countersuit for unspecified damages to be determined at the end of construction.

LOS ANGELES METRO RAIL RED LINE

OIG ANALYSIS OF CONSTRUCTION CONTRACTS

MOS 2
(in millions)

Engineer Estimate	Award Above/ (Below) Estimate	Award Amount	Change Orders To Date	Extrapolated Change Orders at Completion	Total Contract Value at Completion	MTA Current Cost Estimate
a	b	c = a + b	d	e	f = c + e	g
\$843	(\$ 69) or (8%) of eng'r estim.	\$774	\$ 89 or 11% of award	\$106 or 14% of award	\$880	\$897

North Hollywood
(in millions)

Engineer Estimate	Award Above/ (Below) Estimate	Award Amount	Change Orders To Date	Extrapolated Change Orders at Completion	Total Contract Value at Completion	MTA Current Cost Estimate
a	b	c = a + b	d	e	f = c + e	g
\$473	(\$ 45) or (10%) of eng'r estim.	\$428	\$ 72 or 17% of award	\$ 91 or 21% of award	\$519	\$561

LOS ANGELES METRO RAIL RED LINE

**DETAIL OF FUNDING SOURCES
OBLIGATIONS TO DATE AND COST TO GO
For Completed and On-Going Segments/Extensions
(in millions)**

Funding Source	MOS 1		MOS 2		North Hollywood	
	To Date	To Go	To Date	To Go	To Date	To Go
<i>Federal Funds</i>						
Sect. 5309 – New Starts	\$605	\$ 0	\$667	\$ 0	\$681 ^{a/}	\$ 0
Sect. 5307 – Capital	91	0	0	0	0	0
ISTEA – CMAQ/STP	0	0	52	3	110	28
Subtotal Federal Funds	\$696	\$ 0	\$719	\$ 3	\$791	\$ 28
<i>State Funds</i>						
1998 STIP	\$ 0	\$ 0	\$ 0	\$ 0	\$16	\$118
Article XIX	202	0	133	0	21	0
1995 Trust Fund	0	0	0	0	67	0
Transit Assistance	26	0	0	0	0	0
Proposition 116	0	0	0	0	25	32
Other	0	0	0	0	10	53
Subtotal State Funds	\$228	\$ 0	\$133	\$ 0	\$139	\$203
<i>Local Funds</i>						
Prop. A 35% Bonds	\$256	\$ 10	\$600	\$150	\$ 0	\$ 0
Prop. C 40% Bonds	0	0	35	0	30	6
Prop. C 25% Bonds	0	0	0	0	17	0
Prop. C 10% Bonds	0	0	0	0	0	7
City of Los Angeles	130	0	92	4	56	35
Benefit Assessment Districts	130	0	0	0	0	0
Commercial Paper Reserve	0	0	0	0	0	29
Subtotal Local Funds	\$516	\$ 10	\$727	\$154	\$103	\$ 77
Grand Totals	\$1,440	\$10	\$1,579	\$157	\$1,033	\$308

^{a/} To date, Congress has only appropriated \$471 million of this figure.

LOS ANGELES METRO RAIL RED LINE

MTA SALES TAX REVENUE (PROPOSITIONS A & C)
 GROWTH TREND
 FYs 1992 - 1997 a/
 (in millions)

Fiscal Year	Proposition A		Proposition C		Total	
	Sales Tax Receipts	Percent Increase	Sales Tax Receipts	Percent Increase	Sales Tax Receipts	Percent Increase
1992	\$367.6	-	\$353.2	-	\$720.8	-
1993	371.5	1.06%	367.6	4.08%	739.1	2.54%
1994	361.4	(2.72%)	356.2	(3.10%)	717.6	(2.91%)
1995	383.2	6.03%	383.2	7.58%	766.4	6.80%
1996	396.6	3.50%	399.3	4.20%	795.9	3.85%
1997	411.0	3.63%	413.2	3.48%	824.2	3.56%
Average Growth		2.30%		3.25%		2.77%

a/ FY 1998 not included in analysis because all sales tax was not yet received by MTA

Major Contributors to This Report

The following is a list of the major contributors to the Mega Review of the Los Angeles Metro Rail Red Line Project.

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