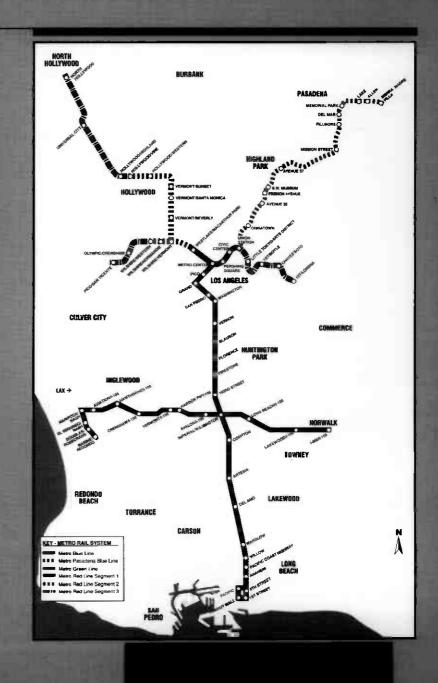
# MTA METRO CONSTRUCTION



Executive Report Rail Program Status



## **RAIL PROGRAM STATUS SUMMARY**

THE LOS ANGELES COUNTY
METROPOLITAN TRANSPORTATION AUTHORITY
METRO CONSTRUCTION DIVISION



Cost Status

Current Budget

\$803,868,000

There were no changes to the Current Budget during the period.

Schedule Status

Current Plan May 2001 Design Progress

**Construction Progress** 

Plan

100.0%

11.0%

Actual

80.3%

8.1%

• The construction variance is due to C6435 Reconstruction and Retrofit of Bridges.

Safety Status

**Project Rate** 0.0

National Average 4.9

148.1

Lost Time Rate Lost Work Days

0.0

The project is producing 15,000 construction hours per month with no Lost Time Injuries.

#### Areas of Concern

Community concurrence with the Chinatown Station redesign.

#### Monthly Highlights

- CWO 039 Project Management/Admin. and CWO 040 were approved by the MTA Board.
- Final design on approved work packages began.
- Repackaging of contracts was finalized to optimize schedule duration and administrative cost reduction.

#### METRO RED LINE SEGMENT 2

**Cost Status** 

Current Budget

\$1,640,781,000

Individual cost elements were redistributed per the Full Funding Grant Agreement.

Schedule Status

Plan

Design Progress 84.4%

**Construction Progress** 

Wilshire Corridor Actual July 1996

85.0%

Actual

84.6%

77.2%

Wilshire Corridor began revenue operations on July 13, 1996.

Vermont/Hollywood - Current Plan

Dec 1998

Vermont/Hollywood Corridor is behind schedule due to tunnel delays under Hollywood Blvd.

Safety Status

Project Rate 2.7

National Average

Lost Time Rate

71.9

4.9 148.1

Lost Work Davs

Seventeen contracts were completed with no Lost Time Injuries.

#### Areas of Concern

Installation of piles and excavation of B251E/F are delaying trackwork access. station

#### Monthly Highlights

- Excavation efforts improved on the sinkhole and the Hollywood/Vine access shaft.
- Trackway area was prepared for turnover to the B610 Trackwork Installation Contractor.
- A prebid conference was held for B648B Vermont/Hollywood Corridor Communications Installation.

#### METRO RED LINE SEGMENT 3 NORTH HOLLYWOOD EXTENSION

**Cost Status** 

Current Budget

\$1,313,848,000

The were no changes to the Current Budget during the period.

Schedule Status

Construction Progress

Current Plan November 2000

Plan

Design Progress 98.9%

55.1%

Actual

91.4%

28.0%

 Trackwork, systems and pre-revenue operation schedules are being reviewed to mitigate schedule delays.

Safety Status Lost Time Rate

**Project Rate** 

National Average

0.2

4.9

Lost Work Days

13.1

148.1

The project completed 140,000 labor hours with no Lost Time Injuries.

#### Areas of Concern

Project impacts due to tunneling under the Santa Monica Mountains are under review.

#### Monthly Highlights

- Design work for Universal City Roadways and Site Restoration packages is scheduled to begin in October with no impact on the current ROD.
- Schedule changes are under review by PD, JMA and MTA to mitigate potential delays.

#### METRO RED LINE SEGMENT 3 MID-CITY EXTENSION

Cost Status

Current Budget

\$490,663,000

• The Current Budget value is contingent on the preferred alternative selected.

**Schedule Status** 

Design Progress

Construction Progress

Current Plan TBD

Plan Actual 0%

0%

0%

0%

Safety Status Lost Time Rate Lost Work Days Project Rate N/A

National Average 4.9

N/A

148.1

No Construction Safety activity for this period.

#### Areas of Concern

 The overall schedule for final design and construction is on hold pending the MTA Board determination of the preferred alternative.

#### Monthly Highlights

- The location of the vertical alignment was refined based on new data and the Tunnel Review Board recommendations.
- The Tunnel Review Board and MTA comments were incorporated into a final draft Engineering Feasibility Study.

#### METRO RED SEGMENT 3 EAST SIDE EXTENSION

Cost Status

Current Budget

\$979,601,000

There were no changes to the Current Budget during the period.

**Design Progress** Schedule Status

> Plan 32.7%

Construction Progress

Actual

36.0%

0.0% 0.0%

The plan reflects the revised scope of work included in the Project Implementation Plan.

Safety Status Lost Time Rate

Current Plan

Project Rate N/A

National Average

N/A

4.9 148.1

Lost Work Days No Construction Safety activity for this period.

November 2002

#### Areas of Concern

Nine full take parcels for C0521 will impact the project schedule by approximately 77 days.

#### Monthly Highlights

- Final design PIP negotiations concluded in August.
- A tunnel industry review was held on August 13, 1996.
- · An initial draft constructability review was submitted by the PMA consultant.

#### VEHICLE ACQUISITION PROJECT

#### Cost Status

Current Budget

Schedule Status

\$257,597,000

There were no changes to the Current Budget during the period.

Schedule Car Delivery

1st Car

March 1998

90%

Design Progress

25%

**Fabrication Progress** 

June 1999 52nd Car

• The schedule from the contractor reflects 16.5 months delay in first car deliveries due to design and manufacturing problems.

#### Areas of Concern

 STS's Vehicle Weight Report forecasts that the Standard Cars will be approximately 250 lbs. over the specified limit.

#### Monthly Highlights

- The first carshell was shipped to Sacramento on August 1, 1996.
- MTA met with STS to review areas of concern and project staffing improvement.
- Integrated Systems Testing on P2000 and H1100 was conducted at Adtranz in Pittsburgh.

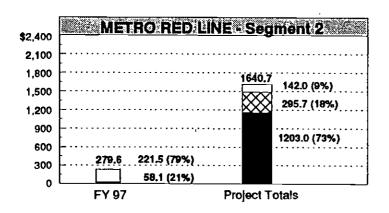
#### METROPOLITAN TRANSPORTATION AUTHORITY PROJECT COST REPORT - TOTAL RAIL PROGRAM SUMMARY BY COST ELEMENT (IN THOUSANDS)

Page 4

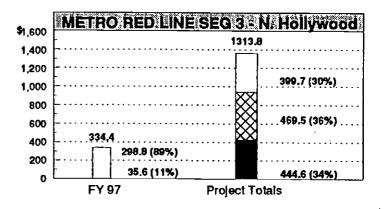
PROJECT: TOTAL RAIL PROGRA	м						STATUS DATE:	8/30/96
ELEMENT	BUDG	3ET	COMMIT	MENTS	EXPEND	TURES	CURRENT	VARIANCE
DESCRIPTION	ORIGINAL	CURRENT	PERIOD	TO DATE	PERIOD	TO DATE	FORECAST	(9-2)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
T CONSTRUCTION	5,153,507	5,343,640	(17,851)	3,705,576	44,649	2,795,813	4,964,817	(44,686
S PROFESSIONAL SERVICES	1,685,529	2,101,723	42,502	1,598,410	14,702	1,414,451	2,056,084	52,491
R REAL ESTATE	, 480,002	537,113	1,554	401,923	1,630	400,027	485,863	2,053
F UTILITY/AGENCY	146,279	160,748	7,074	136,470	507	109,167	158,165	2,505
FORCE ACCOUNTS	1	ľ			}			
D SPECIAL PROGRAMS	11,045	16,747	(102)	5,650	16	4,815	15,701	(1,046
C CONTINGENCY	560,120	340,634	o	o i	o	0	273,692	(66,937
A PROJECT REVENUE	(18,115)	(37,411)	o	(2,822)	(25)	(11,308)	(33,161)	4,251
PROJECT GRAND TOTAL	8,018,367	8,463,194	33,177	5,845,207	61,479	4,712,965	7,921,161	(51,369

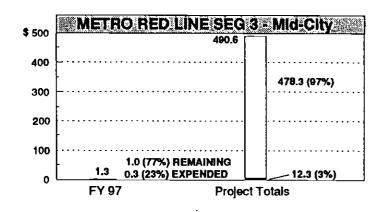
NEW REQUIREMENTS	BUDG	3ET	COMMIT	MENTS	EXPEND	TURES	CURRENT	VARIANCE
DESCRIPTION	ORIGINAL	CURRENT	PERIOD	TO DATE	PERIOD	TO DATE	FORECAST	(9-2)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
T CONSTRUCTION	0	49,404	(2,258)	41,879	153	22,390	60,033	10,629
S PROFESSIONAL SERVICES	o	17,484	o	16,461	. 0	9,432	17,657	173
R REAL ESTATE	o	o	o	o	0	37	0	0
F UTILITY/AGENCY	0	o	o	o	o	o	o	0
FORCE ACCOUNTS	}					i		
D SPECIAL PROGRAMS	o	20	o	20	0	20	3,142	3,122
C CONTINGENCY	o	f,348	o	· 0	0	o l	1,027	(320)
A PROJECT REVENUE	0	o	o	0	o	o	(11,462)	(11,462)
NEW REQ. SUBTOTAL	0	68,256	(2,258)	58,360	153	31,879	70,397	2,142
PROJECT GRAND TOTAL	8,018,367	8,531,450	30,919	5,903,567	61,632	4,744,844	7,991,558	(49,227)

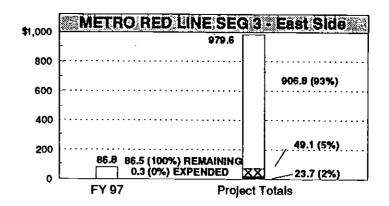
### BUDGET STATUS - August 30, 1996 (in \$ Millions)



Page

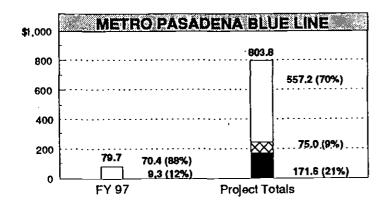


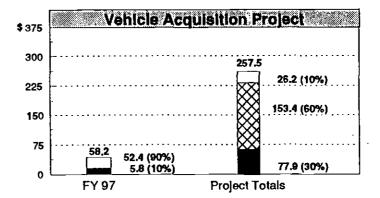




Actual Spent Encumbered Remaining Budget

## BUDGET STATUS - August 30, 1996 (in \$ Millions)

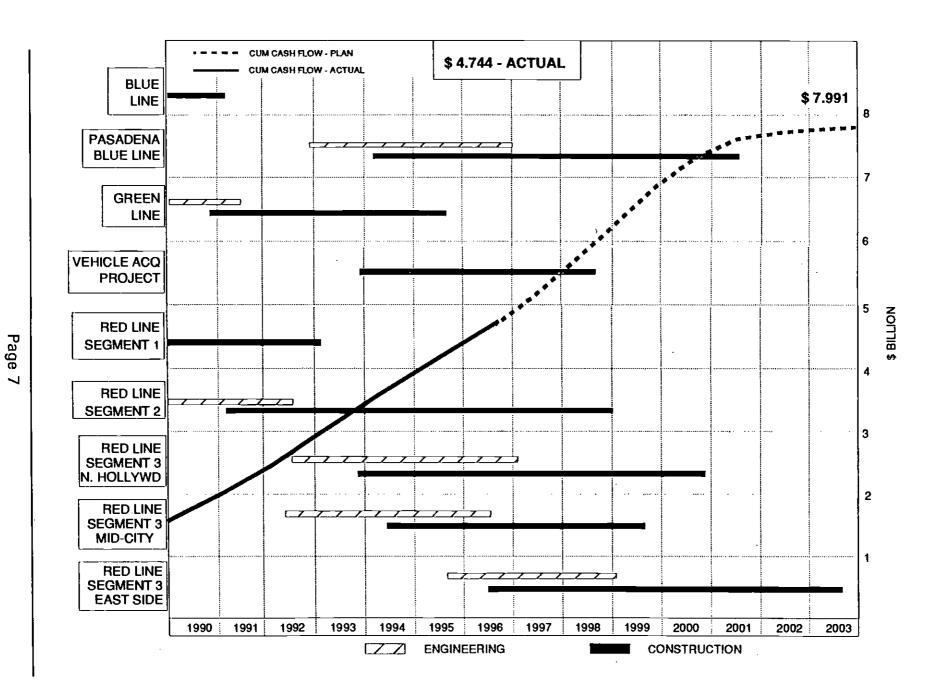




**Actual Spent** 

Encumbered

Remaining Budget

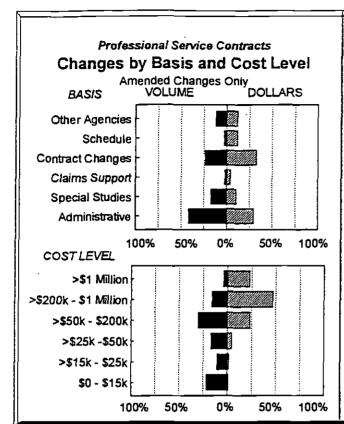


#### METROPOLITAN TRANSPORTATION AUTHORITY

							FUNDIN		RCES (II										AUGUST	
		3UJB C	PASAL			GREEN	METRO		METRO							ED UNE			TOTA	
i l	UN S	E"	BLUE	LINE	\$	* %	SEGM	ENT 1**	SEGME	NT 2	SEG 3	* NH	SEG 3	- MC	SEG 3	·ES	PRO S	JECT %	PROG	
ORIGINAL SCOPE:					•		-		•		•	- A	•		•		•		•	*
FTA-SECTION 3			1				605.3	42	667.0	40	681.0	52	242.5	49	492.9	50			2688.7	32
FTA - OTHER																	11.9	4	11.9	o
ISTEA - FED SURFACE TRANSIT PROG									52.1	3	50.0	4			25.0	2	84.0	32	211.1	3
FED-ISTEA RSTP/CMAQ											39.9	3	40.4	8	86.1	9	6.1	3	172.5	2
FTA-SECTION 9						!	90.6	6											90.6	1
STATE			387.8	48	106.4	15	210.3	15	133.0	8	65.0	5	40.0	8	65.0	7	33.5	13	1041.0	12
STATE TSM MATCH											3.2	o	7.2	2	11.1	1			21.5	o
SB 1995 TRUST FUND											75.0	6							75.0	1
PROPOSITION A	877.2	100	202.6	25	205.1	28	179.5	12	501.9	31									1966,3	23
PROPOSITION C			213.5	27	400.3	56					192.8	15	151.6	32	299.1	31	122.0	48	1379.3	16
PROP C (AMERICAN DISABILITY ACT)					6.0	1													6.0	0
CITY OF LOS ANGELES							34.0	2	157.5	10	190.7	14	9.0	f	0,3	o			391.5	5
BENEFIT ASSESSMENT							130.3	9	58.0	4	13.5	1							201.8	2
COST OVERRUN ACCOUNT						 	200.1	14						'					200.1	2
TOTAL	877.2	100	803.9	100	717.8	100	1450,1	100	1569.5	96	1311.1	100	490.7	100	979.5	100	257.5	100	8457.3	99
OTHER LOCALLY FUNDED ACTIVITIES:																				
PROP C (TRANSIT ENHANCEMENTS)									68.7	4	2.7	o							71.4	1
FED ISTEA RSTP/CMAQ									2,5	o									2.5	o
TOTAL									71.2	4	2.7	О							73.9	

Note: Data reflects Current Budget

Page 8



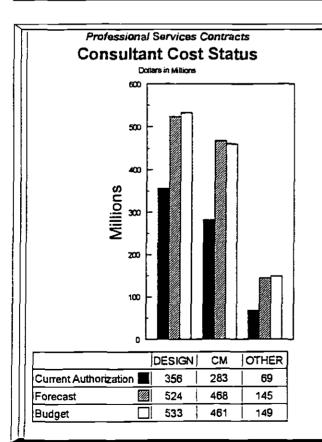
#### **CHANGE BASIS ANALYSIS**

Administrative changes account for approximately 42% or 304 of the 729 Consultant Change Notices overall. This equals 29% of the overall change cost of amended changes.

#### **CHANGE COST LEVEL ANALYSIS**

As shown on the Cost Level Analysis chart opposite, the MTA Board approves 69.7% of all change costs associated with the Rail Project or \$69M of a total change cost of \$99M. This equals 20% of the total change volume or 148 of 729 total changes.

Note: Data for Basis and Cost charts includes only MTA Board amended changes. Prior months reports also included staff approved changes not amended by the MTA Board.



## PROFESSIONAL SERVICES COST ANALYSIS

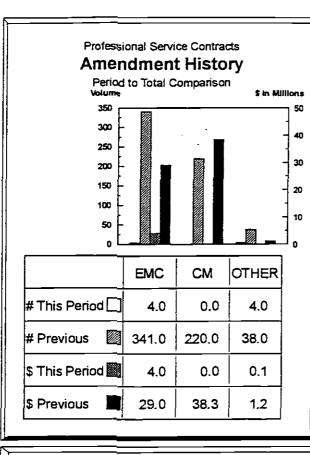
Categories represent all professional services contracts, not individual contracts (i.e. "design" includes all line 11 contracts not just EMC).

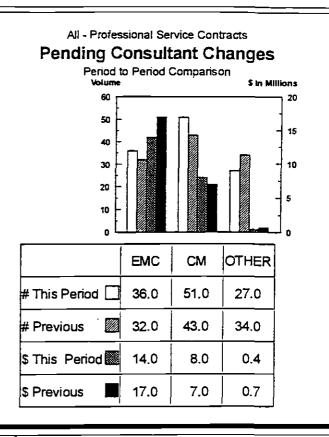
The forecast cost for design and other consultant contracts is below the current budget. While the forecast for construction management contracts continues to exceed the budget amount, due to delays in project activities on the Metro Red Line Eastside Extension and Pasadena Blue Line

#### Data Source:

CMS: Consultant Contract Authorization, Forecast and Budget Values.

CHNGSAMP/08/96





#### CONSULTANT CHANGE NOTICE ANALYSIS

Thirteen new Requests for Change (RFC) were received during the period with a total estimated value of \$2.5 million.

Fifteen new Consultant Change Notices (CCN's) were assigned during the period with an estimated value of \$413 thousand.

Eight CCN's were approved by the MTA Board with a negotiated value of \$4.5 million.

Three CCN's were rejected / cancelled during the period.

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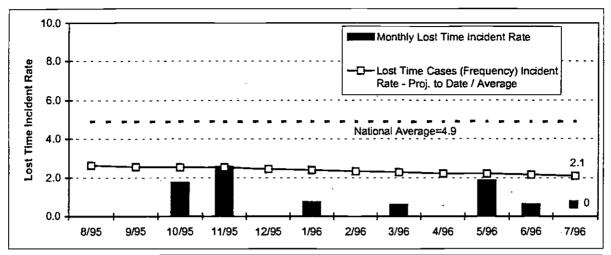
## Cost Performance Relative to Corporate Goals (IN THOUSANDS)

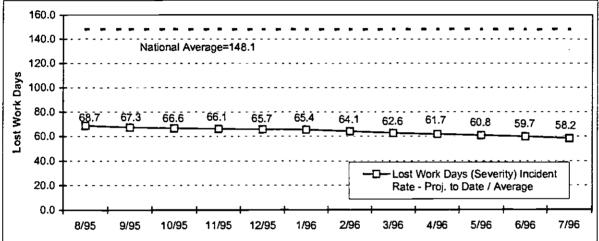
																					ST 1996
	METRO	BUUE UNE	METROP		METHO G	REEN UNE		RED UNE		RED UNE	METRO			SED LINE			AEHICITE V				COPP
	50(1.00)	OCTOOCS OF	BUJE		0011400	~~~~		IENT 1		MENT 2	SEGMEN		SEGMEN		SEGME		PRO.		PROC		GOAL.
CONSTRUCTION	DOLLARS													PEHCENI							
CONSTRUCTION	657,487	74.95%	448,058	55.65%	477,238	98.49%	812,270	30,0276	1,137,802	89.35%	826,874	63.04%	0	ū	841,401	65,15%	180,644	89.72%	5,181,772	64.87%	
REAL ESTATE	55,592	6.34%	59,915	7.44%	28,047	3.83%	140,000	9.66%	87,773	5.35%	89,076	6.79%	0	. 0	27,459	2.79%	0	0.00%	485,863	6.08%	9.0
PROFESSIONAL SERVICES:								,													
ENGINEERING/DES	69,587	7,93%	119,401	14.83%	83,296	11,60%	221,659	15.29%	165,514	10.09%	87,121	6,64%	0	0	103,892	10.55%	1,700	0.84%	652,170	10.67%	
CONSTR MGMT,	91,642	10.45%	66,854	8,30%	78,213	10,90%	118,429	8,03%	184,563	10.03%	115,919	8.84%	0	0	84,983	9.63%	0	0.00%	718,603	9.00%	
STAFF	17,655	2.01%	46,820	5.82%	24,179	3,37%	95,558	6,59%	55,749	3,40%	59,588	4.54%	0	0	37,565	3.82%	3,840	1,91%	340,954	4.27%	4%
отнея	14,222	1.62%	22,075	2.74%	17,337	2.42%	32,671	2.25%	24,268	1.48%	41,709	3.16%	o	0	17,358	1.76%	9,237	4,59%	178,877	2.24%	2000
SUBTOTAL.	193,106	22.01%	255,150	31.69%	203,025	28.28%	466,317	32,16%	410,094	24,99%	304,337	23.20%	0	0	243,798	24.76%	14,777	7,34%	2,090,604	26.17%	20%
CONTINGENCY	963	0.11%	43,187	5,36%	12,757	1.78%	31,432	2.17%	5,922	0.36%	102,810	7.84%	0	0	71,818	7,30%	5,930	2.95%	274,819	3,44%	500
PROJECT REVENUE	(29,877)	-3,41%	(1,211)	-0.15%	(1,263)	-0.18%	0	0.00%	(810)	-0.05%	(11,482)	-0.87%	0	0	0	0.00%	0	0.00%	(44,623)	-0.58%	
GRAND TOTAL	877,271	100.00%	905,100		717,802	100,00%	1,450,019	100.00%	1,640,781	100.00%	1,311,635	100.00%	0	0	984,476	100.00%	201,351	100,00%	7,988,435	100.00%	

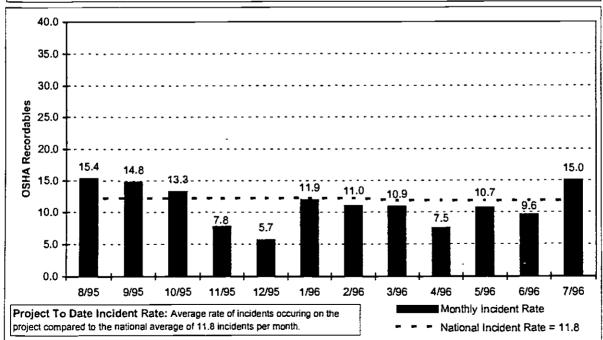
\*METHO RED LINE SEGMENT 3 MID-CITY FORECAST NOT AVAILABLE. NOTE: Data reflects Current Forecast.

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## Rail Program Status Summary







**EXECUTIVE SUMMARY** 

Summary Status Report

Period Ending - August 30, 1996



## MAJOR ACTIVITIES THIS PERIOD Sierra Madre Villa C6435 Bridge Reconstruction Allen Avenue Retrofit Lake Ave.: Completed placement for four abutments and wing walls at overcrossing; completed excavation and shoring of Bent 2; continued fabrication of precast girders; continued reinforcement installation for footings at Bent 2; began column casing installation for Bent 2, Columns 1, 2 & 3. Allen Ave.: Completed drilling of 20" CIDH. Lake Avenue Memorial Park Allen Ave.: Completed drilling of 20" CIDH piles for Bent 2 footing; completed coring of column and bent cap at undercrossing; Del Ma completed installation of column cage at Fillmore Street undercrossing; began column installation. Sierra Madre Blvd.: Continued reinforcement installation for footings at Bent 3; began column casing installation. Foothill Blvd.: Caltrans requested temporary suspension of work due to settling at Abutment 1 footing (settlement is not related Mission Street to this contract work). Avenue 57 C6430 - Arroyo Seco Bridge Reconstruction Completed asphalt paving change order work of park Southwest Museum access roads and parking areas. Continued park landscaping change order work. • Continued safety certifications (80% complete). Continued punch list work items (95% complete). French Avenue Continued close-out activities. Avenue 26 Chinatown Union Station

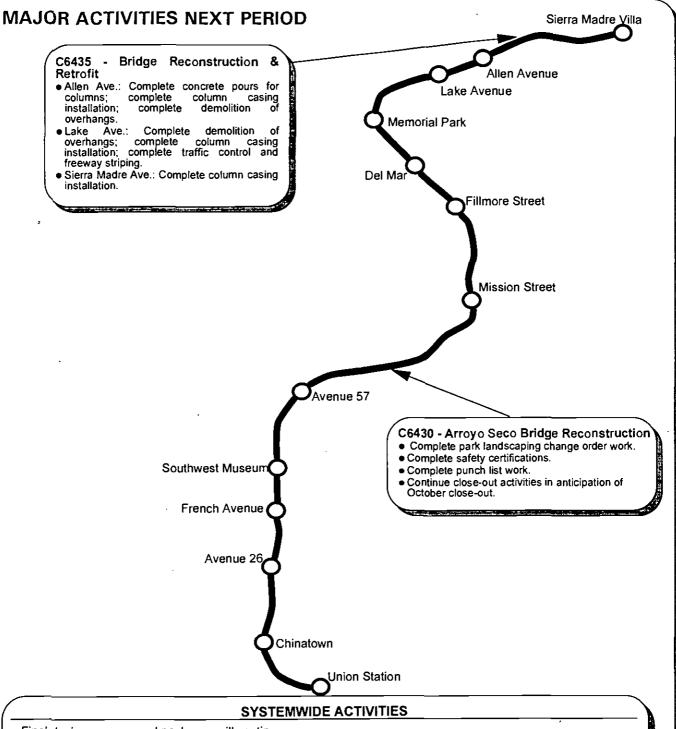
#### SYSTEMWIDE ACTIVITIES

- The first two phases for approval of final engineering based on contract criticality were approved concurrently by the MTA Board (CWO 039 for Project Management & Administration and CWO 040 for C6420, C6440, C6450, H0070, H0090 and Ave. 57/Southwest Museum stations).
- Start of final design on approved packages began.
- Repackaging of contracts to optimize schedule duration and reduce administration costs was finalized.
- Interface with community representatives regarding work scope changes continued.
- The potential for a Supplemental Environmental Impact Report (SEIR) due to cost reduction work scope changes continued to be evaluated by MTA Environmental staff.

**Summary Status Report** 

Period Ending - August 30, 1996





- Final design on approved packages will continue.
- Development of detailed Project Implementation Plan (PIPs) to support the phased approval process for final design will continue.
- The third phase for approval of final engineering based on contract criticality will be submitted to the MTA Board (CWO 041 for C6390, C6460, C6400, C6475, C6480, C6500, C6510 and C6520).

## Summary Status Report Period Ending - August 30, 1996



#### BUDGET

	Amount (\$ in mil)	Change from Last Month (\$ in mil)
Original Budget	841	None
Approved Budget	804	None
Current Forecast	804	None
Commitments	246	+ 1
Expenditures	172	+ 2

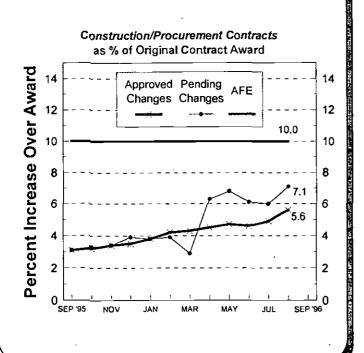
#### OTHER LOCALLY FUNDED ACTIVITIES

	Amount (\$ in_mil)	Change from Last Month (\$ in mil)
Original Budget	0	None
Approved Budget	0	None
Current Forecast	1	None
Commitments	1	+ 1
Expenditures	0	None

#### **BUDGET ANALYSIS**

- The Original Budget of \$841.0M was formally adopted in January 1993 and was based on a November 1997 ROD.
- The Approved Budget and Current Forecast are based on cost reduction scope changes and a May 2001 ROD adopted in February 1996.
- There is no change to the overall budget or forecast during the period.
- The increase in Commitments during the period is for CWO's approved for the EMC to start final design on the first two of five design packages.
- The increase in Expenditures for August is for construction (Contract C6430, Arroyo Seco Bridge Reconstruction; Contract C6435, Reconstruction & Retrofit of Steel and Concrete Bridges), MTA Administration, and professional services contracts (engineering and construction management).

#### CONTRACT CHANGES



#### **CONTRACT CHANGE ANALYSIS**

The percent of approved and pending change values shows a slight increase this period. Approved changes increased for park restoration work being done at the Arroyo Seco Bridge Reconstruction contract (C6430) and pending changes increased to reflect the negotiated amount for the Lacy St. Bridge repair work at the Reconstruction and Retrofit of Concrete and Steel Bridges contract (C6435).

The significant approved and pending changes include:

- C6410 (L.A. River Bridge) CO 8.00, Differing Site Conditions at Bents 5 & 6; CO 14.00, Adjust Bid Quantities.
- C6430 (Arroyo Seco Bridge Reconstr.) CO 4.00, Adjust Bid Quantities; CN 52.02, Cost for Operating Engineer's Strike, credit CN 65.00, Delete 9-Way Ductbank & Related Electrical.
- C6435 (Reconstruction & Retrofit of Concrete & Steel Bridges) - CN 25.00, Lacy St. Bridge Repair; credit CN 45.00, Delete Madre St. Bridge work.

## **Summary Status Report**

## Period Ending - August 30, 1996



#### **SCHEDULE**

		Change from Last Month
Current ROD	May 2001	None
Design Progress*	80.3%	None
Constr. Progress	8.1%	+0.4
Critical Path Float (Calendar Da	-119 days ays)	None

#### **SCHEDULE ANALYSIS**

- The forecast ROD is May 2001. Delays in the schedule due primarily to finalizing scope definition and obtaining community concurrence for cost reduction items have resulted in negative float.
- The negative float is being partially mitigated through implementation of a phased engineering approval process, whereby packages are being submitted to the Board based on criticality. This is expected to mitigate one month of the potential five month delay.
- During August, the first two phases were approved by the Board and final design began; remaining phases will be submitted in September, October, and December.
- The Project Team is evaluating additional measures to mitigate the balance of the negative float.

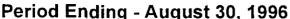
## **EMC** COST PERFORMANCE Cost Estimate Final Design - CWO 37 At Completion (in millons) August 96 Current Productivity 0.1 Contract \$3.0 Forecast 0.8 \$3.0 0.6 0.4 100% **Design % Complete**

## EMC COST PERFORMANCE ANALYSIS

- CWO 037, established at the February 1996 MTA Board meeting, was approved for development of a PIP and definition of new scope to incorporate approved cost containment items.
- The final scope for CWO 037 was formally defined and approved last period. Through the August reporting period, the EMC is reporting 58% progress on this CWO and a CPI of .92. Weekly progress meetings are being held to assure the design effort stays within scope, schedule, and budget.
- EMC plans to mitigate any problems encountered in achieving the work; therefore, a CPI of 1.0 is forecast for the overall work order.
- Currently, all CWOs committed for EMC total \$92.0M; the forecast remains at \$119.2M and includes \$17.0M for design support during construction.

<sup>\*</sup>Based on original design work scope; design will be rebaselined pending an evaluation of design status, detailed definition of new work scope & preparation of an execution plan.

Summary Status Report





## CONSTRUCTION SAFETY **STATISTICS**

Change from Last Month

-0.1

Recordable Injury Rate

1994 National Average 11.8

2.9

Project Rate (Cum.)

Lost Time Rate (Frequency)

1994 National Average 4.9

Project Rate (Cum.) 0.0 None

Lost Work Days (Severity)

1991 National Average 148.1

Project Rate (Cum.) 0.0 None

NOTE: Statistics are based on July data.

## **CONSTRUCTION SAFETY** SUMMARY

- Project is producing over 15.000 construction work hours per month and has continued with zero Lost Time cases and no lost work days.
- Completed over 542,000 total workhours to-date without Lost Time Injury.
- Continued with eight (8) OSHA-200 recordable cases to date, resulting in a further reduction of the cumulative project rate.

#### AREAS OF CONCERN

Item (Date Initiated: August 1996)

Community Concurrence With Design

NEW\*

#### Concern/Impact

Community concurrence with the Chinatown Station redesign remains outstanding. Currently, issues relating to the number of elevators, the canopy design, and other items remain to be resolved. These issues may delay the final design of the station and impact the schedule.

#### Status/Action

The Project team is working with community representatives to obtain agreement on the number of elevators and the choice of platform design. The Chinatown Station will be included in the September submittal to the Board for engineering approval; but design of the platform cannot be done until the canopy design is determined.

Summary Status Report Period Ending - August 30, 1996



#### AREAS OF CONCERN (Con't)

#### NEW (Gon't)

Item (Date Initiated: August 1996)

Real Estate Availability

#### Concern/Impact

In general, real estate availability is a concern to the extent that certain parcels may not be available to support the schedule for contracts on the critical path. The most critical real estate issues are related to:

<u>Ratkovich Property</u>: A parcel which is owned by the Federal Government and leased by Ratkovich Property is required for the Chinatown Aerial. This property may not be available in sufficient time to support the construction schedule. A resolution must be reached with Ratkovich because this parcel is not eligible for the condemnation process. In order to support the schedule, the property must be available by January 1998; however, the acquisition process may require at least 14 months to complete.

<u>Certification of Parcels for Underpinning</u>: Certification of parcels required for underpinning associated with Contract C6450 (Del Mar to Memorial Park Line Segment) is required in order to obtain necessary easements for construction. To support the current construction schedule, these parcels must be available by January 1998; however, it may take a longer period of time to complete the certification process for the 16 affected parcels.

#### Status/Action

Regarding the Ratkovich property, efforts are underway to obtain a response from Ratkovich regarding its status and disposition. These efforts include written requests for Ratkovich to respond to MTA inquiries regarding the property. Regarding the parcels for underpinning, the certification process must begin immediately in order to assure the schedule is not impacted. MTA Engineering prepared a letter to the EMC during the period which requests certification be completed as soon as possible

#### ONGOING

Item (Date Initiated: March 1996)

Start of Final Design

#### Concern/Impact

The current schedule shows -119 calendar days of negative float because final design for Contract C6450 and other near critical contracts did not begin as early as planned.

#### Status/Action

A rolling wave approach, whereby work packages are being approved for design based on criticality, has been implemented. During August, the first two of five phases were approved by the Board and final design began. This phased approach may mitigate some of the negative float; if for any reason the following three phases are not submitted and approved as planned, the float in the schedule will be further impacted.

Summary Status Report Period Ending - August 30, 1996



## AREAS OF CONCERN (Con't)

#### RESOLVED

Item (Date Initiated: May 1996)

Reconciliation of Design Criteria

#### Concern/Impact

Value engineering, cost containment, and community initiated scope changes have resulted in the need to reconcile design criteria revisions. The criteria must be reconciled by August 8, 1996 in order to support the May 2001 ROD.

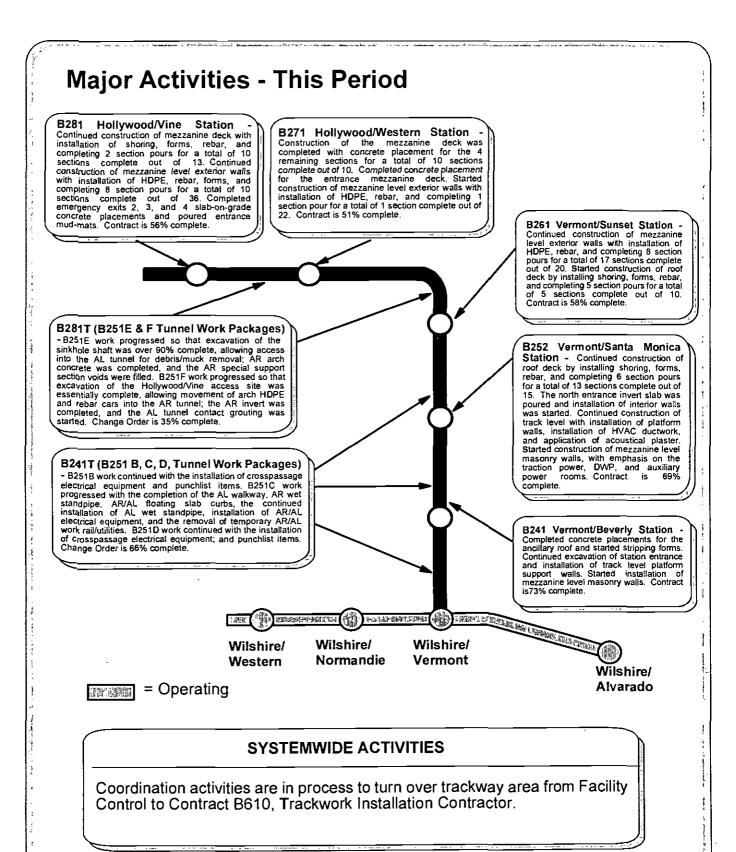
#### Status/Action

The Project team is working with EMC to define the final work scope and commence with final design. Engineering will continue on approved packages; at the 85% engineering completion level a list of exceptions for each discipline will be submitted. The MTA Quality Assurance staff will review this list of exceptions and make a determination on their disposition.

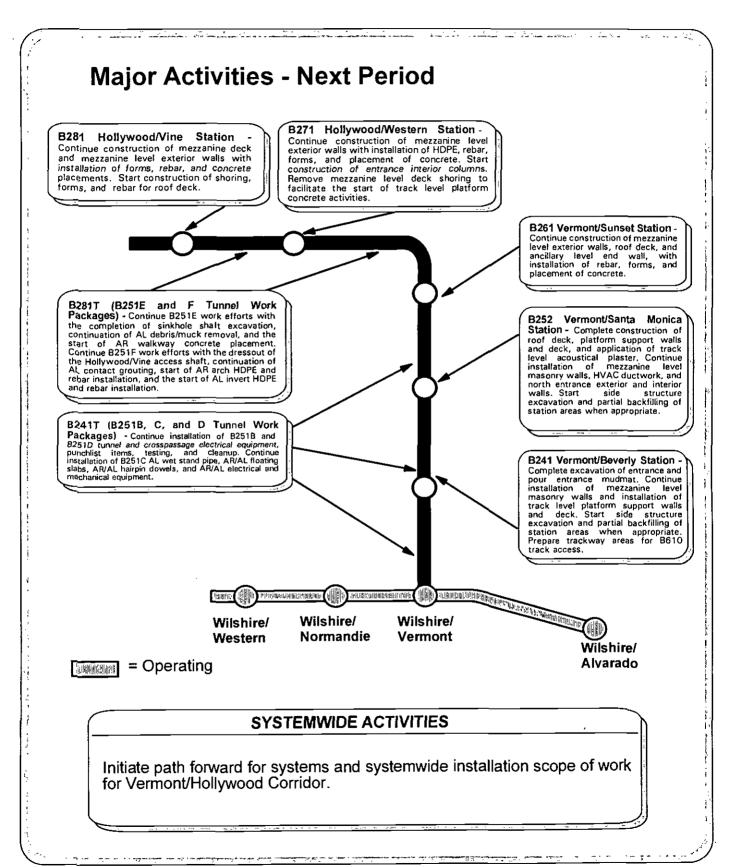
## **METRO RED LINE SEGMENT 2**

**EXECUTIVE SUMMARY** 











#### BUDGET

	Amount (in \$ mil)	Change from Last Month (in \$ mil)
Original Budget	1,446	None
Approved Budget	1,576	None
Current Forecast	1,576	None
Expenditures	1,175	24

#### Additional Locally Funded Activities

	Amount (in \$ mil)	Change from Last Month (in \$ mil)
Original Budget	0	None
Approved Budget	65	None
Current Forecast	65	None
Expenditures	28	None

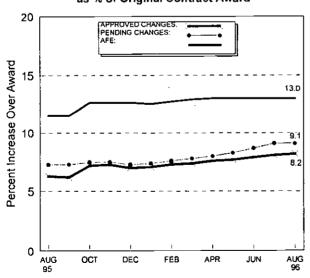
#### **BUDGET ANALYSIS**

Original scope expenditures increased \$24.0 million\*, primarily due to construction and professional services contracts. The expenditures to date are 74.6% of the current total forecast. Expenditures for Additional Locally Funded Activities were unchanged at 43.4% of the current total forecast. Overall, there were no changes to the total budget and forecast categories this period.

\*Due to the implementation of the new Financial Information System (FIS), actual expenditure amounts from March, April, May, and June have been adjusted to reflect corrected expended values. This period reflects the cumulative expenditure amount from March through August.

#### CONTRACT CHANGES

Construction/Procurement Contracts as % of Original Contract Award



#### **CONTRACT CHANGE ANALYSIS**

The percent of approved changes showed a slight increase this period. The approved changes are attributable to the progress of work on contracts B241T, Tunnel Completion; B252, Vermont/Santa Monica Station and Crossover; and B261, Vermont/Sunset Station. The were no changes this period in the percentage of pending changes and authorization for expenditures (AFE).

The significant approved changes include:

- B241T, Tunnel Completion-Work Authorized: CN 15.00, Repairs for installation of floating slabs; CN 33.00, Repairs to nonconforming walkways; CN 34.00, Removal of tar and seal leaks at tar location in the VAR tunnel; and CN 37.01, Seal gasoline leaks.
- B252, Vermont/Santa Monica Station and Crossover– Executed: CN 25.00, Mechanical Design Changes; Work Authorized: CN 30.01, Architectural design changes; and CN 131.00, Electrical field changes.
- B261 Vermont/Sunset Station-Executed: CN 28.02, Subsurface investigation at parcel B2-204 and offsite locations; Work Authorized: CN 31.00, Kaiser entrance revised emergency exit stairs; and CN 110.00, Temporary decking entrance.

## METRO RED LINE Segment 2 Summary Status Report

Period ending - August 30, 1996



#### **SCHEDULE**

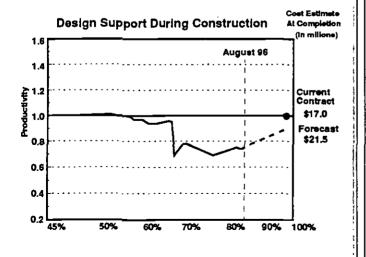
Vermont/Hollyw	Change from Last Month	
Current ROD	Dec. 31, 1998	None
Design Progress	99%	None
Critical Path Float	-109 Days	-21 days
Const. Progress	77.2%	1.2%

#### SCHEDULE ANALYSIS

#### Vermont/Hollywood Corridor

- The Vermont/Hollywood Corridor critical path continued through the same activities this period. With the sinkhole and Hollywood/Vine access shaft excavation activities almost completed, the B251E and F tunnel and station trackwork access activities are the next efforts to be emphasized. The critical path then continues through B610, Trackwork Installation; B620, Train Control Installation; System Integrated Testing; and Pre-revenue Operations.
- The forecast revenue operations date improved by 21 calendar days this period, as a result of better than expected excavation efforts on the sinkhole and Hollywood/Vine access shafts. This was due in part to Kajima/Ray Wilson's increased shift, weekend, and/or overtime efforts on these critical activities.

## EMC COST PERFORMANCE



## EMC COST PERFORMANCE ANALYSIS

- The EMC Cost Performance chart represents the cost performance for design support during construction (DSDC) on a cumulative to-date basis.
- The chart relates the Cost Performance Index (CPI) relative to design support during construction percent complete. DSDC is estimated at 82.9% complete through August 1996, at an estimated CPI of 0.74.
- The actual numbers of Requests for Information (RFIs) and other design services, submittals, and Change Notices for both the Wilshire and Vermont/Hollywood Corridors continue to significantly exceed the number budgeted. With the approval of Consultant Change Notice (CCN) 500, budgets through mid-1997 will be established, enabling an increase in earned value, which is expected to significantly improve the CPI.
- The percent complete has been revised this period to reflect the restructuring of the project required to prepare CCN 500 data.



## CONSTRUCTION SAFETY STATISTICS

Project-to-Date Rates		Change From Last Month
Recordable Injury Rate		
1994 National Average	11.8	
Project Rate	20.2	-0.1
Lost Time Rate (Frequency)		
1994 National Average	4.9	
Project Rate	2.7	N/C
Lost Work Days (Severity)		
1991 National Average	148.1	
Project Rate	71.9	-1.2

Segment 2 is incurring over 140,000 work hours per month.

(Based on July statistics)

## CONSTRUCTION SAFETY SUMMARY

- Seventeen active contracts were completed in July without a Lost Time Injury.
- Year-to-Date, Segment 2 has produced 10.8 recordable injuries per 200,000 hours of work. This remains below the National Average of 11.8.
- Lost Time Injuries (Year-to-Date) have occurred at a rate of 1.2 per 200,000 work hours. This is approximately 75% below the National Average of 4.9.

#### **ONGOING**

#### Item (Initiated June 1996)

Hollywood Boulevard Stations and Line Trackwork Access

#### Concern/Impact

As a result of past delays in installation of piles and excavation of B251E Sink Hole Shaft and B251F Hollywood/Vine Access Shaft, June 1996 completion forecasts for B251E and F tunnel trackwork milestones impacted the project completion forecast by 63 calendar days.

#### Status/Action

The to-date addition of manpower, shiftwork, and/or overtime has resulted in an earlier than previously forecast completion of the sinkhole shaft (B251E) and the Hollywood/Vine access shaft (B251F) excavation activities, resulting in a cumulative 21 calendar day improvement through August. Emphasis on improvement to critical path activities will continue so that additional mitigation measures are taken, as appropriate.



#### **ONGOING**

#### Item (Initiated March 1996)

Vermont Stations and Line Trackwork Access

#### Concern/Impact

As a result of the delays in the B251B, C, and D work packages, access for B251B and C work through B241 Vermont/Beverly Station and access for B251D through B261 Vermont/Sunset Station have the potential for influencing the current B241 and B261 stations dates for the trackwork milestones.

#### Status/Action

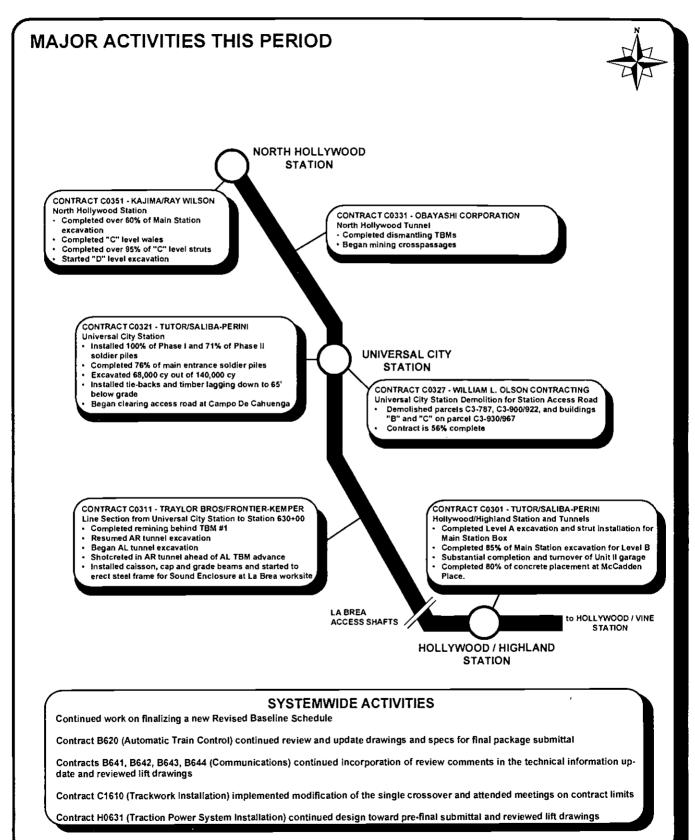
An assessment of the required tunnel (8251B, C and D) and station (B241 and B252) work for trackway access was completed. It was determined that the B610 trackwork contractor should mobilize for an October 1, 1996 work start for the B251B and B251D tunnel sections. The remaining sections B241, B251C, and B252 would be released later in October or early November 1996. Since the Vermont/Hollywood Corridor studies required that these sections be released in total by October 1, 1996, this strategy will help mitigate forecast delays and reduce further risk to the December 31, 1998 Revenue Operations Date, by getting the work started as planned. The current plan reflects a Vermont Line Trackwork availability of October 1, 1996 to November 1, 1996.

METRO RED LINE SEGMENT 3

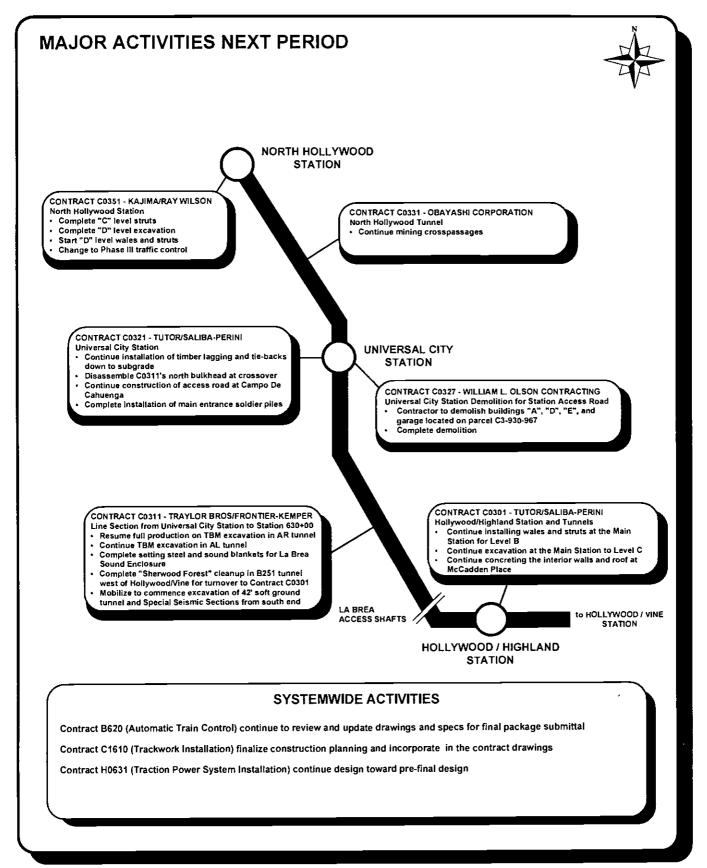
NORTH HOLLYWOOD EXTENSION

**EXECUTIVE SUMMARY** 









ES-2



#### **BUDGET**

**ORIGINAL SCOPE ACTIVITIES** 

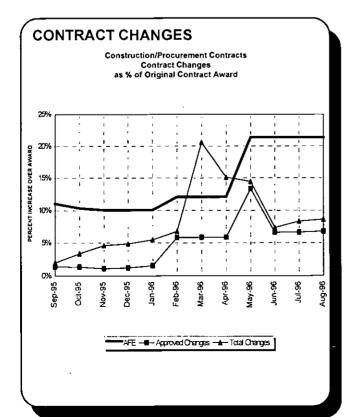
	Amount (in \$ mil)	Change from Last Month (in \$ mil)
Original Budget	1310.8	None
Approved Budget	1310.8	None
<b>Current Forecast</b>	1310.8	None
Expenditures	441.2	30.6

#### ADDITIONAL LOCALLY FUNDED ACTIVITIES (ALFA)

Amount (in \$ mil)	Change from Last Month (in \$ mil)
0.0	None
3.0	None
8.0	None
3.5	None
	(in \$ mil) 0.0 3.0 0.8

#### **BUDGET ANALYSIS**

- The Current Forecast has not changed this period from the June 96 fiscal year close.
- The Expenditures for Original Scope Work and ALFA through the current period are \$441.2M and \$3.5M respectively. This represents 33.9% of the Total Current Forecast. Expenditures realized for the current period were \$30.6M. Retroactive expenditure adjustments for \$19.5M were realized for April, May, and June due to the continuing reconciliation of the FIS systems. The actual expenditure for July was \$11.1M. Additional adjustments are anticipated in the future until the final reconciliation of the FIS accounting periods.
- ALFA Expenditures currently exceed the ALFA Current Forecast by \$2.7M. This is due to the charges associated with the Tunnel Settlement of Contract B251 (Vermont/Hollywood Tunnel). These ALFA charges are anticipated to be offset at a later date with revenues from insurance and claims settlement. Upon realization of these anticipated revenues, the expenditures will fall in line with the \$0.8 M forecast.



#### CONTRACT CHANGE ANALYSIS

- The combined effect of Approved and Pending Changes recorded this period represent an 8.65% vs. 8.35% last month cumulative increase to overall contract award values.
- Individually, the Approved Changes represents 6.79% of the awarded contract amounts while the Pending Changes now stand at 1.86% of the same base.

ES-3

EXE 9



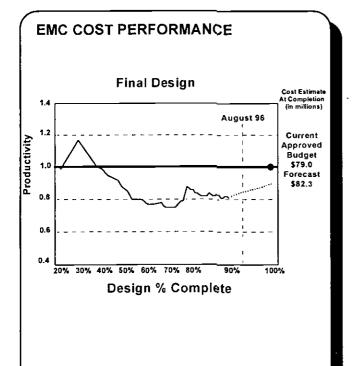
#### **SCHEDULE**

		Change from Last Month
Current ROD	November 200	0 -27
Design Progress	91.4%	+0.3%
Construction Progres (estimated)	ss 28%	+1.5%*
Critical Path Float	-181 Cal. Days	-27

\*Construction progress is less than expected this period due to C0311 (Line Section from Universal City Station to Station 630+00) issues.

#### **SCHEDULE ANALYSIS**

- Project critical path changed this period from -154 to -181 calendar days. The additional delay is due to remining efforts in AR tunnel. Forecast project completion date is November 14, 2000, compared to the official ROD date of May 17, 2000. The forecast is within the Full Funding Agreement schedule obligation date of December 2000.
- All known schedule impacts to C0311 contract due to ground condition encountered in Reach 6C, seasonal springs protection, enclosure at La Brea Shafts, and special seismic section redesign are incorporated into the schedule. These delays amount to approximately five months.
- Critical path continues to run through Contracts C0311 (Line Section from Universal City Station to Station 630+00), C1610 (Trackwork Installation), B620 (Automatic Train Control), B645 (SCADA) and Testing/Pre-Revenue Operations.
- Trackwork, systems and pre-revenue operation schedules are being reviewed with the expectation of modifying these activities, in part, to recover from currently forecasted delays. Changes are under PD, JMA and MTA review.



#### **EMC COST PERFORMANCE ANALYSIS**

- Final Design is approximately 91.4% complete, with all of the Major Facilities (Stations and Tunnels) at 100% complete. The Cost Performance Index is expected to improve to 90% over the next 12-18 months as the final design of site restoration and systems is completed, based on improvement in productivity and efficiencies.
- The MTA has calculated a Forecast at Completion of \$82.3M, not including the cost of work to be transferred from Segment 2 to Segment 3 for B251-related design activities.
- The MTA is working with the EMC to reduce the overall cost forecast by as much as 15% as the project moves fully into construction. The MTA has identified areas such as Design Change Notice (DCN) tasks that may be modified to lower cost of EMC services.

ES-4 EXE 10



#### **CONSTRUCTION SAFETY STATISTICS**

#### Project-to-Date Rates

i rojout to Date (tates		
		Change from Last Month
Recordable Injury Rate		
1994 National Average	11.8	
Project Rate	12.4	0.3
Lost Time Rate (Frequency)		
1994 National Average	4.9	
Project Rate	0.2	N/C
Lost Work Days (Severity)		
1991 National Average	148.1	
Project Rate	13.1	-0.8
riojectivate	13.1	-0.0

 Segment 3 North Hollywood is incurring over 140,000 work hours per month.

(Based on July statistics)

#### **CONSTRUCTION SAFETY SUMMARY**

- No Lost Time Injuries reported for any construction activities during July.
- Since November 1995, Segment 3 North Hollywood has completed over 1,136,497 work hours without a Lost Time Injury.
- To date, the project has completed over 2,000,000 work hours with two Lost Time Injuries.

#### **AREAS OF CONCERN**

#### **ONGOING**

Item (Date initiated: February 1996)

Contract C0311 (Line Section from Universal City Station to Station 630+00)

Project Impacts Due to Implementation of MTA Board Motion Dated January 24, 1996 Regarding Tunneling Under the Santa Monica Mountains

Concern/Impact

Implementation of MTA Board Motion to adopt community mitigation measures have impacted overall project schedule and forecast. Measures instituted by the Board include reducing the amount and intensity of blasting, increasing tunnel grouting to prevent surface springs leaking into the tunnel, and monitoring tunneling effects on surrounding public and private property ecosystems.

#### Status/Action

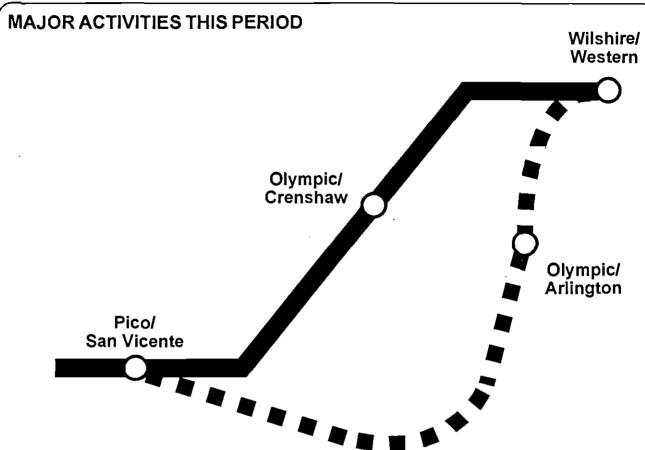
Current forecast delays to Contract C0311 impact planned ROD. In an effort to recover ROD, a revision to follow-on Trackwork and Systems Installation contracts is currently under review. JMA is also reviewing C0311 construction milestones sequence and will have a preliminary plan to discuss with the contractor and MTA early in September 1996.

EXE 11 ES-5

METRO RED LINE SEGMENT 3
MID-CITY EXTENSION

**EXECUTIVE SUMMARY** 

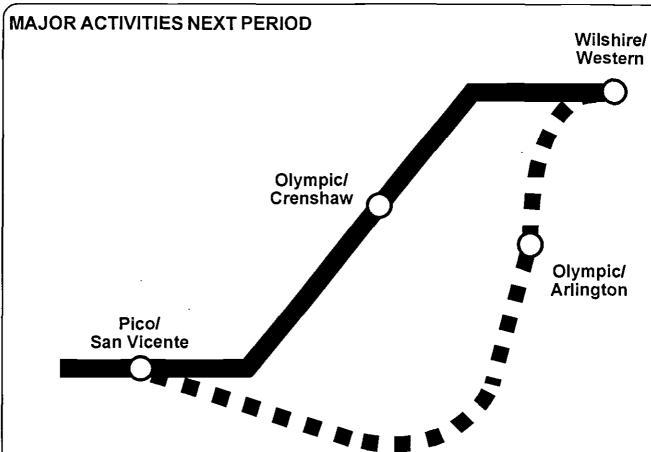




#### SYSTEMWIDE ACTIVITIES

- Additional subsurface gas test data were mapped, evaluated, and plotted.
- The location of the vertical alignment was refined based on the new data and Tunnel Review Board (TRB) recommendations.
- TRB and MTA staff comments were incorporated into a final draft Engineering Feasibility Study report.
- Final comments were received and incorporated into the final Engineering Feasibility Study report.





#### SYSTEMWIDE ACTIVITIES

- EMC will complete and submit the final Engineering Feasibility Study report.
- MTA and EMC will review and revise schedules for each of the four new alignment options in order to establish escalated ROM costs for each option.
- MTA will continue procurement of an environmental consultant to prepare an SEIS/SEIR for the new alignment.



## **BUDGET**

Original Budget	Amount (In \$ mil) 490.7	Change from Last Month (In \$ mil) None
Approved Budget	490.7	None
Current Forecast	TBD	TBD
Expenditures	12.3	0.1

#### OTHER LOCALLY FUNDED ACTIVITIES

Original Budget	Amount (In \$ mil) 0.0	Change from Last Month (In \$ mil) 0.0
Approved Budget	0.0	0.0
Current Forecast	0.0	0.0
Expenditures	0.0	0.0

## **BUDGET ANALYSIS**

 Budget and Forecast values are subject to outcome of alignment alternative selected.

None at this time.

# **SCHEDULE**

Current ROD	7/16/99	Change from Last Month None
Design Progress	0%	None
Construction Progress	0%	None
Critical Path Float	N/A	None

## **SCHEDULE ANALYSIS**

- The engineering feasibility study for the Wilton/Arlington alignment began May 3 and completed August 29, 1996. The final report will be submitted September 5, 1996.
- If the alignment and configuration prove feasible, a SEIS/SEIR will be prepared.
- This will lead to an FTA Record of Decision, scheduled for March 1998, and the subsequent resumption of final design.

### **CONSTRUCTION SAFETY**

No activity for this period.



## **AREAS OF CONCERN**

NEW

None

ONGOING

#### Item

Mid-City Master Schedule (initiated 8/95)

#### Concern/Impact

The Draft SEIS/SEIR when completed will define the project alternatives. The MTA Board will be able to make a decision on the preferred alternative for the Final SEIS/SEIR. The overall schedule for final design and construction is on hold pending the MTA Board determination of the preferred alternative. The impact to R.O.D. cannot be finalized until the preferred alternative is selected.

#### Status/Action

Administrative Draft SEIS/SEIR document preparation for two alternatives was completed. Both alternatives, however, were determined to have severe community impacts. A third alternative has been authorized for study, and the SEIS/SEIR process is incurring further delays pending the outcome of that study. See SD-1 for discussion.

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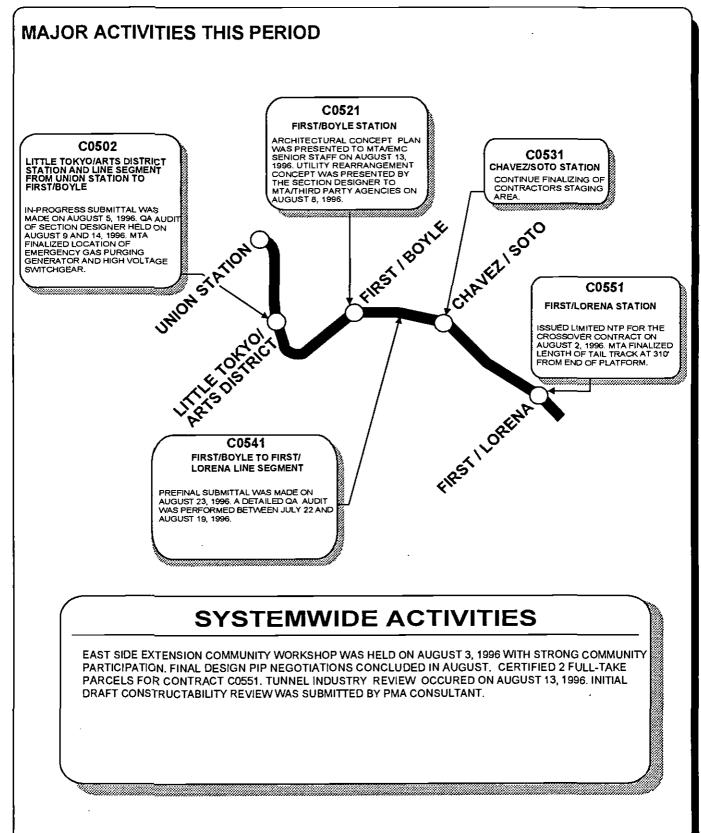
None

METRO RED LINE SEGMENT 3

EAST SIDE EXTENSION

**EXECUTIVE SUMMARY** 

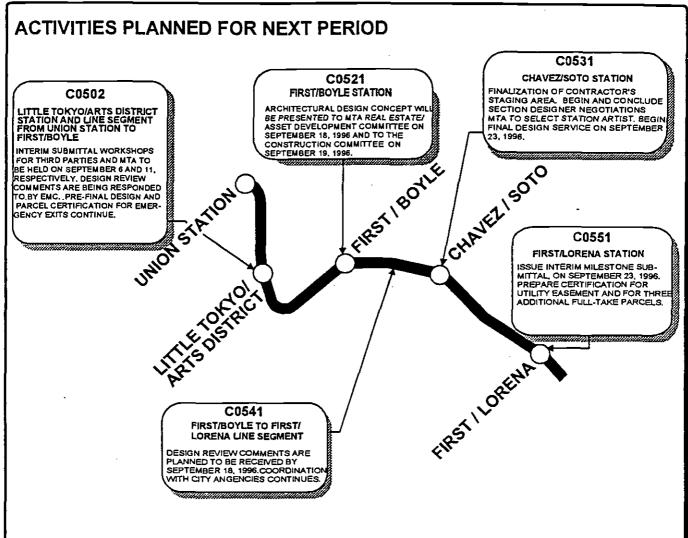




# **METRO RED LINE - Segment 3 East Side Extension**

# Summary Status Report Period ending - August 30, 1996





# SYSTEMWIDE ACTIVITIES

APPROVAL OF NEGOTIATED FINAL DESIGN PIP AND CONSTRUCTION MANAGER PLANNED FOR THE SEPTEMBER BOARD. EMC TO CERTIFY 30 SUB-SURFACE EASEMENTS FOR C0541. MTA'S FIRE/LIFE/SAFETY DIVISION DECISION ON THE DELETION OF UNDER PLATFORM EXHAUST (UPE) FANS. DESIGN SUBMITTAL PACKAGES WILL BE ISSUED FOR THE FOLLOWING: CONTRACT C0538 - PHASE I DEMOLITION ON SEPTEMBER 16; CONTRACT C0528 - PHASE II DEMOLITION ON SEPTEMBER 27; AND, CONTRACT P1616 - DIRECT FIXATION RAIL FASTENERS ON SEPTEMBER 16.



### **BUDGET**

	Amount (In Millions)	Change from Last Month (In Millions)
Original Budget	979.6	None
Approved Budget	979.6	None
Current Forecast	984.5	0

#### OTHER LOCALLY FUNDED ACTIVITIES

THE EGGLET	Amount (In Millions)	Change from Last Month (In Millions)
Original Budget	0	None
Approved Budget	0	None
Current Forecast	3.1	3.1

### **BUDGET ANALYSIS**

- Negotiations of the Final Design P.I.P. concluded on July 29, 1996 and is anticipated to be presented at the September Board for approval.
- During the month of August the Art-in-Transit forecast was added under "Other Locally Funded Activities" totaling \$3.1 million.
- The following cost mitigation measures under review have an estimated potential cost savings of \$2 to \$4 million dollars.
  - -Floating Slab reduction
  - -Deletion of Under Platform Exhaust (UPE) fans
- Presently, MTA's Fire/Life/Safety division is reviewing the recommended deletion of Under Platform Exhaust (UPE) fans at each station. A decision is expected to be reached in September. EMC and MTA are continuing to identify, analyze and implement further cost mitigation measures.

## **CONTRACT CHANGES**

No activity for this period.

# **CONTRACT CHANGE ANALYSIS**

No activity for this period.

# **METRO RED LINE - Segment 3 East Side**

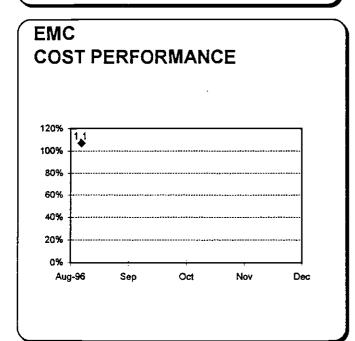
# Summary Status Report Period Ending - August 30, 1996



SCHEDULE		ange from st Month
Current R.O.D.	Nov. 2002	None
Final Design progress	32.7%	3.3%
Construct. Progress	N/A	N/A
Critical Path Float	-319	0

#### SCHEDULE ANALYSIS

- The forecast R.O.D. is September 2003, or 319 calendar days (228 working days) behind the FFGA scheduled R.O.D. of November 2002 due to delay in full release of Final Design and the delay in the section designers' Notice to Proceed.
- Complete recovery of the full 319 days presently seems unlikely until the award of the Construction Management (CM) contract, at which time the CM will begin to incorporate substantially more detail into the schedule and more precisely define the critical activity relationship.
- Schedule mitigation measures being evaluated include:
  - -Construction/design activity resequencing
  - -Simplified contractor interfaces
  - -Possible second tunnel concreting crew
  - -Possible second fiber optics crew
- Completion of the review of the Design & Project Schedules is expected in September. At that time, each schedule will be baselined.
- Initial draft of constructability review by PMA consultant was submitted to MTA in August.



# EMC COST PERFORMANCE ANALYSIS

The EMC Cost Performance Index for the month of August is 1.1. Final Design progress is 32.7%



### AREAS OF CONCERN

#### **ONGOING**

Item [Initiated July 1996]

Nine parcels needed for Contract C0521 are behind schedule.

## Concern/Impact

Per the latest MTA acquisition schedule, nine full take parcels for contract C0521 will impact the project schedule by an average of 77 working days.

#### Status/Action

MTA Real Estate is formalizing the property acquisition schedule, and with their plan will determine if acquisition of each parcel can be less than the assumed 14 months. Results of this exercise to be available in September.

#### **ONGOING**

Item [Initiated June 1996]

Repackaging demolition Contracts C0528, C0538 and C0558.

#### Concern/Impact

Repackaging of these contracts will be based upon property availability rather than station site. This repackaging effort has currently delayed two design submittals that were originally scheduled for June 1996, and two for July 1996. Further design submittals may also be delayed. It is not foreseen that this will impact the current forecasted R.O.D. of September 2003.

#### Status/Action

EMC has developed revised design submittal dates for the demolition contracts without any impacts to the current forecasted R.O.D. EMC is awaiting MTA approval of the revised milestone dates.



# **AREAS OF CONCERN (Continued)**

#### **ONGOING**

Item [Initiated February 1996]

Project escalation costs due to delayed starts.

## Concern/Impact

Stemming directly from the delay in the full release of final design services and the Section Designers' Notice-To-Proceed, the project schedule has been increased 319 calendar days (228 working days) from the approved FFGA schedule, incurring a \$44 million escalation cost.

#### Status/Action

The \$44 million escalation cost has been partially mitigated by a previously identified \$15 million value engineering cost savings. The MTA Board's decision to delete the air conditioning system at the stations and to procure sixteen passenger vehicles instead of twenty-four has resulted in an additional cost savings of \$20.9 million. For July 1996, rearrangement of the High Voltage and Power Distribution System and the development of a separate Bulk Procurement contract for the Electrical Main Distribution System have resulted in an additional cost savings. The total of the two, \$3.1 M and \$.5 M, respectively, have reduced the East Side Ext. Project forecast by \$3.6 M. The MTA/EMC is continuing evaluating mitigation measures including ground borne noise and vibration mitigation plans and the deletion of Under Platform Exhaust (UPE) fans at each station. MTA's Fire/Life/Safety Division is expected to reach a decision on the UPE during September. EMC and MTA are continuing to identify, analyze and implement further corrective actions.

#### **ONGOING**

Item [Initiated February 1996]

Identification of 14 (full-take) additional property acquisitions for Contract C0551.

## Concern/Impact

Assuming 14 months acquisition for each parcel, contract C0551 will be impacted by 71 working days. This impact results in the C0551 contract becoming part of the critical path.

#### Status/Action

MTA Real Estate is formalizing the property acquisition schedule and with their plan will determine if parcel acquisition can be shorter than the assumed 14 months. Results of this exercise to be available in the month of September.



# **AREAS OF CONCERN (Continued)**

#### **ONGOING**

Item [Initiated February 1996]

MTA requested EMC to study alternative methods of tunneling for the East Side Extension.

## Concern/Impact

To minimize settlement along the East Side alignment to prevent disturbance to residents, excessive building repair costs, and schedule delays.

#### Status/Action

During the on-going discussions with the MTA and the Tunnel Advisory Panel, EMC has been directed to proceed with the design using closed positive-face control tunnel boring machines for the East Side Extension project. EMC is proceeding with developing specifications for either Earth Pressure Balance (EPB) or Slurry Shield machine to meet this requirement.

#### ONGOING

Item [Initiated February 1996]

Revised Baseline documents including scope of services and schedule.

#### Concern/Impact

Due to changes in work scope that have been incorporated into the work in progress, the previous design status baseline is no longer valid. The baseline is used as the basis for measuring design progress and performance measurement and without one, accurate performance measurement is unable to be performed and reported.

#### Status/Action

Negotiations of the May 3, 1996 PIP scope of services and corresponding costs were finalized in August. Negotiations of the Final Design schedule are expected to conclude during September. All documents, including the Final Design schedule, will then be baselined in September.



# **AREAS OF CONCERN (Continued)**

#### **ONGOING**

Item [Initiated February 1996]

Coyote Pass Escarpment within East Side Extension alignment.

## Concern/Impact

Study of the Coyote Pass Escarpment shows the East Side Extension alignment crosses the escarpment at three places. Study is needed to determine whether enhanced structural and tunnel design is required to mitigate the risk at escarpment crossings. Cost impacts range from zero to substantial (\$10 million).

#### Status/Action

Steel tunnel liners will be used at one fault crossing to mitigate the Maximum Design Earthquake, per the recommendation of the Dr. Eisenstein panel. The single steel liner installation has not resulted in an impact of the critical path. A definitive steel liner length has not been determined and is awaiting review by EMC Estimating for a cost impact.

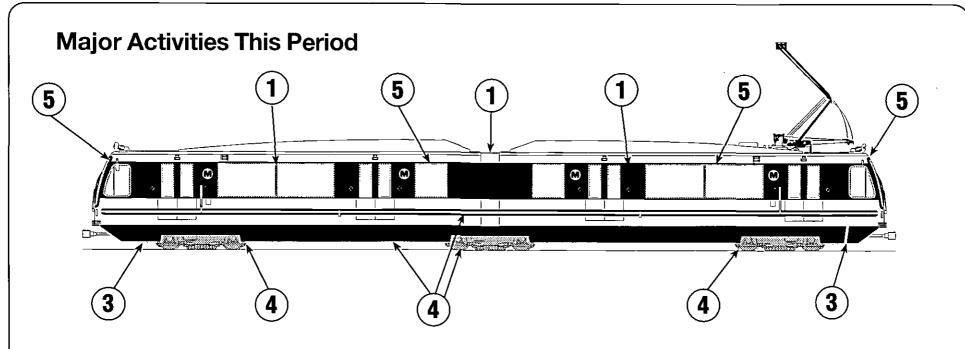
# **VEHICLE ACQUISITION PROJECT**

# **EXECUTIVE SUMMARY**

# L.A. Light Rail Vehicle

Summary Status Report Period Ending - August 30, 1996



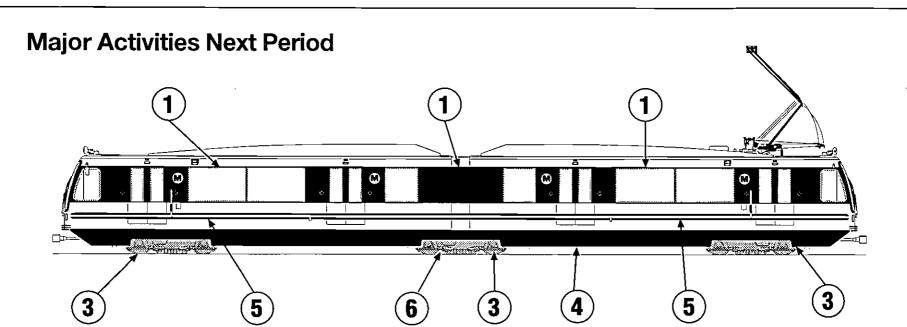


- 1. First carshell was shipped to Sacramento on August 1, 1996.
- 2. MTA met with STS's Management to review areas of concern and project staffing improvement on August 22, 1996.
- 3. Conducted Horn Test and additional Compatibility Tests in the Metro Blue Line shop.
- 4. Conducted Integrated Systems Test (P2000 and H1100) at Adtranz.
- 5. Conducted First Article Inspection (FAI) of lighting system and signs at Luminator.

# L.A. Light Rail Vehicle

Summary Status Report Period Ending - August 30, 1996





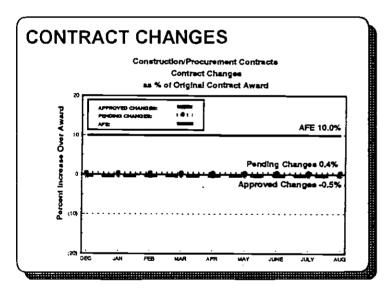
- 1. Car Shell #2 will be completed and prepared for structural testing to be conducted by Duewag engineers at the Carson plant.
- 2. Continue final assembly of the first car in Sacramento.
- 3. Conduct Dynamometer Test of the Brake System and First Article Inspection (FAI) of the Control Box at WABCO.
- 4. Conduct First Article Inspection (FAI) of first auxiliary power system assembled in U.S.
- 5. Conduct Passenger Seat First Article Inspection (FAI).
- 6. Conduct Center Truck First Article Inspection (FAI).



BUDGET	-	·
	Amount (in \$ mil)	Change from Last Month (in \$ mil)
Original Budget	257.6	-0-
Approved Budget	257.6	-0-
Current Forecast	201.4	-0-
Expenditures	77.9	-0-

### **BUDGET ANALYSIS**

- Car reduction effected 9/08/95 which will-reduce contract value from \$215 million to approximately \$170 million after termination liability is negotiated (2-4 months from now).
- The current forecast includes the reduction of both procurement contract value and other project costs.



## **CONTRACT CHANGE ANALYSIS**

The figures for August 1996 are as follows:

 Approved Changes
 (0.5%)

 Pending Changes
 0.04%

 AFE
 10%

#### **SCHEDULE** Change from **Last Month** Schedule Car Delivery 1st Car March 1998 +90 Days 52nd Car June 1999 +90 Days N/C **Design Progress** 90-95% complete Fabrication Progress 25-30% complete N/C N/C **Critical Path** Carshell delivery Delay (1st Car) -16.5 months +3 Months **Data Date** August 1, 1996

## SCHEDULE ANALYSIS

The Contractor's last forecast schedule reflected a total of 16.5 months delay in 1st car deliveries. Time required for Acceptance Testing of the 1st car increased in the August schedule due in part to limited availability of Test Track (Revenue Operation). Other subsystems with potential impact on delivery are air conditioning, doors and communications equipment. Carshell delivery is still on the critical path. Acceleration of the delivery schedule for the first several carshells is unlikely, however, the delivery schedule is projected to improve for later units.

In recent schedules, STS assumed that the MTA can accept cars at a higher rate than specified (2 cars per month).



# AREAS OF CONCERN

#### **ONGOING**

## Item (Date Initiated June 1996)

Vehicle Weight

## Concern/Impact

The most recent STS Weight Report (Revision 10) forecasts that the Standard Cars will be approximately 250 lbs. overweight. Although this may appear to be an incrementally small violation of the specification, there are two concerns. First, at this stage of the design, we should be operating with a weight *contingency* of several thousand pounds, allowing for unanticipated increases in estimated equipment weight. Second, the P2000 contract prohibits acceptance of any car over the weight limit.

#### Status/Action

The MTA requested STS validate their forecast by replacing estimated equipment weights in the report with measured values from First Article Inspections, and by weighing the first carshell fabricated at Carson. The first carshell was forecast to weigh 24,209 lbs.; the results of the weighing at Carson indicate that the carshell weighs 22, 490 lbs., some 1700 lbs. under the estimate. Although this is good news, some cautions are in order. First, it must be confirmed that the model used for the estimate is consistent with the actual carshell that was weighed. Second, it must be confirmed that all the pieces were installed on the carshell that was weighed. Furthermore, there will be variations from carshell to carshell.

The MTA will continue to monitor this aspect of the program and provide monthly updates.

## Item (Date Initiated March 1996)

Fatigue Test of Power Truck

## Concern/Impact

The Duewag power truck failed fatigue testing for a second time. In late June, at approximately 790,000 cycles into the 2,000,000 cycle test, cracks developed in both of the friction brake support arms. Although not identical to the previous failures, these failures were in the same "general" location, and dictate a re-design of the structure.

#### Status/Action

LTK received Duewag's revised power truck stress analysis in August, comparing the stresses generated in a welded v. cast design of the friction brake bracket. This analysis was reviewed and found inadequate due to internal inconsistencies regarding the fatigue strength of the fabricated v. cast designs, and the allowable stress levels. Additionally, the MTA received Duewag's test schedule for the power truck. This schedule indicates the following:

15AUG96→06SEP96: Manufacture of 3 brake bracket castings
 09SEP96→01OCT96: Pre-testing at Duewag test lab in Uerdigen

• 01OCT96→06NOV96: Preparation and formal testing

LTK will witness the end of the formal tests and the dye penetrant testing.



# AREAS OF CONCERN (CON'T)

## Item (Date Initiated March 1996)

Failure to Press Disc Brake Hubs onto Axle at the Design Force

## Concern/Impact

Due to a mis-communication between STS, Duewag, Penn Machine, WABCO, and BSI, the German supplier of braking discs and hubs, the interference fit between the braking disc hubs and the axle seat for the braking disc hubs requires a pressing force of up to 94 tons. Apparently, the braking disc was designed for a different size hub. LTK views the mounting force required as excessive, in that pressing forces this high can damage the axle.

#### Status/Action

MTA objected to the high pressing force and requested that STS modify the interference limits for a better fit. Confirmation from STS is still pending.

## Item (Date Initiated February 1996)

Schedule Slippage

# Concern/Impact

The 01AUG96 delivery schedule indicates a delay of 16.5 months for the first car with delivery of the last car approximately 7 months late.

#### Status/Action

A milestone was reached in August with the shipment of the first carshell from Carson to Sacramento.



# AREAS OF CONCERN (CON'T)

## Item (Date Initiated July 1995)

Cancellation of 22 Standard Cars

## Concern/Impact

STS requested \$10 million in damages from the cancellation of 22 cars. This claim must be validated before payment can be made.

#### Status/Action

The MTA is awaiting receipt of back-up data from STS in order to validate their claim.

## Item (Date Initiated March 1995)

**HVAC Design** 

## Concern/Impact

Sutrak completed a Prototype Unit which was physically inspected by LTK. However, the first systems test is pending due to a number of postponements by Sutrak.

#### Status/Action

The reason for the continued delay is due to a contractual dispute between Siemens and Sutrak over a variety of issues. However, Siemens reported in August that all contractual issues were resolved, and that preliminary testing would begin in early September.



# AREAS OF CONCERN (CON'T)

## Item (Date Initiated November 1995)

Carborne Signal Equipment for 16 Standard Cars

## Concern/Impact

Current plans call for sixteen LA Standard Cars to be assigned to the Metro Blue Line (LA→Long Beach). The Standard Cars require on-board signal equipment compatible with the Blue Line wayside before they can enter revenue service. STS was requested to provide a proposal for the supply of this equipment.

#### Status/Action

STS Executive Management promised to expedite submittal of this proposal.