

COST AND SCHEDULE  
STATUS REPORT  
APRIL 1984

**MTA LIBRARY**

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SECTION I  
PRELIMINARY ENGINEERING

SCRTD METRO RAIL PROJECT  
 PRELIMINARY ENGINEERING STATUS  
 APRIL 1984

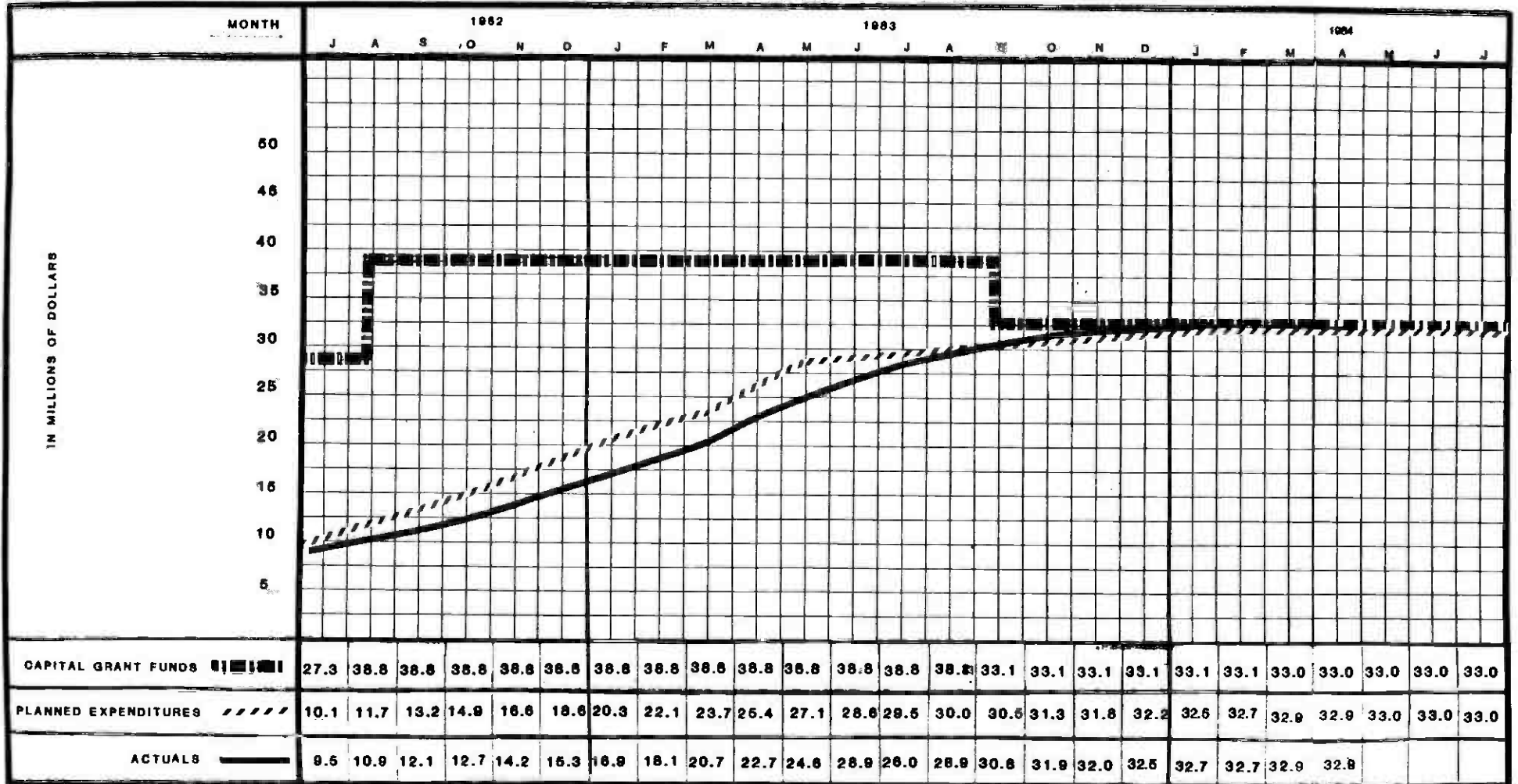
This section details the \$32.996 million currently budgeted for Preliminary Engineering. Expenditures to date total \$32.863 million. The original budget is \$38.8 million, and the current budget mentioned above is \$33.0 million. The difference, \$5.8 million, represents the P.E. underrun and has been transferred to C.P.E.

All Preliminary Engineering contracts are complete. Administration is taking steps to close all contracts with official termination letters. Once all invoicing is completed, all contract budgets will be reduced to match their expenditures and any monies remaining in the P.E. line items will be transferred to the same line items in C.P.E. R.T.D. has yet to receive final invoices on the following contracts:

<u>Audit #</u>	<u>Contract</u>	<u>Funds Remaining</u>
2419	Sedway/Cooke	\$ 46,690
2705	Schimpeler/ Corradino	15,393
2611	County of L.A.	8,620
2900	Schimpeler/ Corradino	8,369
2910	NBMBW & M	13,350
2943	O'Melveny & Meyers	40,430
	TOTAL	<u>\$ 132,852</u>

The accompanying graph illustrates the planned P.E. expenditures against the actual expenditures. The difference between planned P.E. expenditures and actual P.E. expenditures is \$132,852 (as shown in the above table). This amount of money is currently available to spend in closing out P.E.

**RTD METRO RAIL PROJECT  
PRELIMINARY ENGINEERING STATUS  
APRIL 1984**



SUMMARY OF PRELIMINARY ENGINEERING  
 BUDGET CHANGES  
 AS OF APRIL 1984

<u>Date</u>	<u>Cum. Budget Amount \$ (000's)</u>	<u>Explanation of Change</u>
July 1982	27.300	Initial P.E. funding Phase I & II
August 1982	38.843	P.E. Phase III
September 1983	33.095	Transfer of P.E. underrun to C.P.E.
March 1984	33.019	Additional transfer of P.E. underrun to C.P.E.
April 1984	32.996	Additional transfer of P.E. underrun to C.P.E.

06/04/84  
P&C(WP)-7.3

Status as of : 05/30/84  
WBS # : 11DAA3113

SCRTD METRO RAIL PROJECT  
PRELIMINARY ENGINEERING BUDGET  
SUMMARY BY MACS CODE (\$000'S)

AFE* 021	(MACS ** CODE) DESCRIPTION	UNOBLIGATED			OBLIGATIONS TO DATE			CURRENT WKG. BUDGET (7=3+6)	APPROVED BUDGET (8)	VARIANCE (9=8-7)
		RESERVED (1)	COMMITTED (2)	TOTAL (3=1+2)	UNEXPENDED (4)	EXPENDED (5)	TOTAL (6=4+5)			
A.	(20.02.01) Purchase of Support Autos	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ 22	\$ 22	\$ 22	\$ 22	\$ 0
B.	(20.02.02) Purchase/Installation of Support Equipment	- 0 -	- 0 -	- 0 -	- 0 -	1,100	1,100	1,100	1,100	0
C.	(20.08.01) Professional Services Contracts	- 0 -	- 0 -	- 0 -	133	24,103	24,236	24,236	24,236	0
D.	(20.15.02) Force Account Work	- 0 -	- 0 -	- 0 -	- 0 -	6,499	6,499	6,499	6,499	0
E.	(20.15.90) Other Supporting Services	- 0 -	- 0 -	- 0 -	- 0 -	1,019	1,019	1,019	1,019	0
G.	(20.16.00) General & Administrative	- 0 -	- 0 -	- 0 -	- 0 -	120	120	120	120	0
GRAND TOTAL		\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ 133	\$ 32,863	\$ 32,996	\$ 32,996	\$ 32,996	\$ 0

\* AFE - Authorization for Expenditure  
\*\* MACS - Management and Control System

PRELIMINARY ENGINEERING BUDGET & COST REPORT

PROFESSIONAL SERVICES CONTRACTS

April 1984

<u>Audit #</u>	<u>Contract</u>	<u>\$ Budget</u>	<u>\$ Actual</u>	<u>C=Completed or % Phys. Compl.</u>	<u>On Schedule</u>
<b>I. WAYS &amp; STRUCTURES</b>					
2440-2	DMJM/PBQ&D	5,332,740	5,332,740	C	Yes
2365-1	Teledyne	283,872	283,872	C	Yes
2428-1	Wilson Ihrig	169,139	169,139	C	Yes
2284-1	Lindvall Richter	271,000	271,000	C	Yes
2256-2	Converse Consults.	1,151,855	1,151,855	C	Yes
2427	Converse Consults.	104,000	104,000	C	Yes
2493-1	PSG Waters	188,387	188,387	C	Yes
2719-1	Real Estate Analysts	37,238	37,238	C	Yes
2720-1	Lea Associates	38,497	38,497	C	Yes
2718-1	Natelson Co.	40,000	40,000	C	Yes
2593	Velma Marshall	24,961	24,961	C	Yes
2654	Glenn Johnson	15,217	15,217	C	Yes
2757	P.E. Sperry	7,606	7,606	C	*
2760	T.G. McCusker	7,253	7,253	C	*
2274	Carl Englund	14,153	14,153	C	*
2195	American Aerial	3,504	3,504	C	*
2640	Larry Gallagher	971	971	C	*
2955	Kellogg Corp.	24,900	24,900	C	*
TOTAL WAYS & STRUCTURES		\$7,715,293	\$7,715,293	N/A	N/A
<b>II. SYSTEMS DESIGN &amp; ANALYSIS</b>					
2439	Kaiser Engineers	3,502,464	3,502,464	C	Yes
2214	JPL	9,500	9,500	C	Yes
2217	Walter Woods	1,020	1,020	C	Yes
2595	Robert Johnston	319	319	C	*
2434-5	B,A&H	3,265,503	3,265,503	C	Yes
2218	Montreal Comm. of Transportation	5,000	5,000	C	Yes
2360	Log/An	1,932	1,932	C	Yes
2349	David Ashley	9,800	9,800	C	Yes
TOTAL SYSTEMS DESIGN & ANALYSIS		\$6,795,538	\$6,795,538	N/A	N/A



PRELIMINARY ENGINEERING  
BUDGET & COST REPORT (cont'd)

<u>Audit #</u>	<u>Contract</u>	<u>\$ Budget</u>	<u>\$ Actual</u>	<u>C=Completed or % Phys. Compl.</u>	<u>On Schedule</u>
III. STATIONS					
2510-2	Harry Weese	4,087,190	\$4,087,190	C	Yes
2419-4	Sedway/Cooke	1,713,865	1,667,175	C	Yes
2418-2	City of L.A.	1,755,815	1,755,815	C	Yes
2705-6	Schimpeler-Corr.	657,158	641,765	C	Yes
2842	Schimpeler-Corr.	10,000	10,000	C	Yes
2803	Schimpeler-Corr.	18,000	18,000	C	Yes
2797	Robert Harmon	24,900	24,900	C	Yes
2611-3	County of L.A.	229,300	220,680	C	Yes
2160-5	Barton-Aschman	25,000	25,000	C	Yes
2225	Barton-Aschman	8,501	8,501	C	*
2395	Computer Usage Co.	8,312	8,312	C	*
2764-1	W.F. Hoey	4,995	4,995	C	*
2610	W.F. Hoey	990	990	C	*
2266	W.F. Hoey	5,000	5,000	C	*
2421	PBQ&D	1,409	1,409	C	*
2900-2	Schimpeler-Corr.	151,000	142,631	C	Yes
TOTAL STATIONS		\$8,701,435	\$8,622,363	N/A	N/A
IV. PROGRAM CONTROL					
2908	Data General	10,967	10,967	C	Yes
2279	TAD-Log/An	451,199	451,199	C	Yes
2163	TAD-Log/An	15,000	15,000	C	Yes
2363	Log/An	28,009	28,009	C	*
2534	TAMS	24,987	24,987	C	*
TOTAL PROGRAM CONTROL		\$ 530,162	\$ 530,162	N/A	N/A
VI. COMMUNITY RELATIONS					
2620	CKT Associates	18,070	18,070	C	*
2619	Institute of Cultural Affairs	23,260	23,260	C	*
2400	John Hennessy	107,712	107,712	C	*
TOTAL COMMUNITY RELATIONS		\$ 149,042	\$ 149,042	N/A	N/A

PRELIMINARY ENGINEERING  
BUDGET & COST REPORT (cont'd)

<u>Audit #</u>	<u>Contract</u>	<u>\$ Budget</u>	<u>\$ Actual</u>	<u>C=Completed or % Phys. Compl.</u>	<u>On Schedule</u>
VII. MISCELLANEOUS CONTRACTS					
3002	Burton Jones	3,750	3,750	C	*
2726	Townsend Assoc.	23,365	23,365	C	*
2907	Jacobs Assoc.	24,900	24,900	C	*
2823	Manuel Padron	7,358	7,358	C	*
2669	Eugene Stann	6,508	6,508	C	*
2671	Fred Burke	2,692	2,692	C	*
2670	George Krambles	9,670	9,670	C	*
2677	Robert Johnston	8,044	8,044	C	*
2668	William Alexander	3,858	3,858	C	*
2430	Bureau de Transit Metro	2,187	2,187	C	*
2499	Barton-Aschman	4,121	4,121	C	*
2179	Tanzmann Associates	9,881	9,881	C	*
2286	Tanzmann Associates	843	843	C	*
2776	U.S.C.	1,539	1,539	C	*
2930	Lincoln Institute	12,689	12,689	C	*
2902	NTS	8,467	8,467	C	Yes
2910-4	NBMBW&M	115,000	101,650	*	*
2943	O'Melveney & Meyers	100,000	59,570	*	*
TOTAL MISC. CONTRACTS		\$ 344,872	\$ 291,092	N/A	N/A
GRAND TOTAL P.E.		\$24,236,342	\$24,103,490	N/A	N/A

\*

Note: Asterisked items indicate Peer Review Boards, General Managers Transit Technical Advisory Committee, and "As Needed" Consultants for whom schedule status is not relevant

SECTION II  
CONTINUED PRELIMINARY ENGINEERING

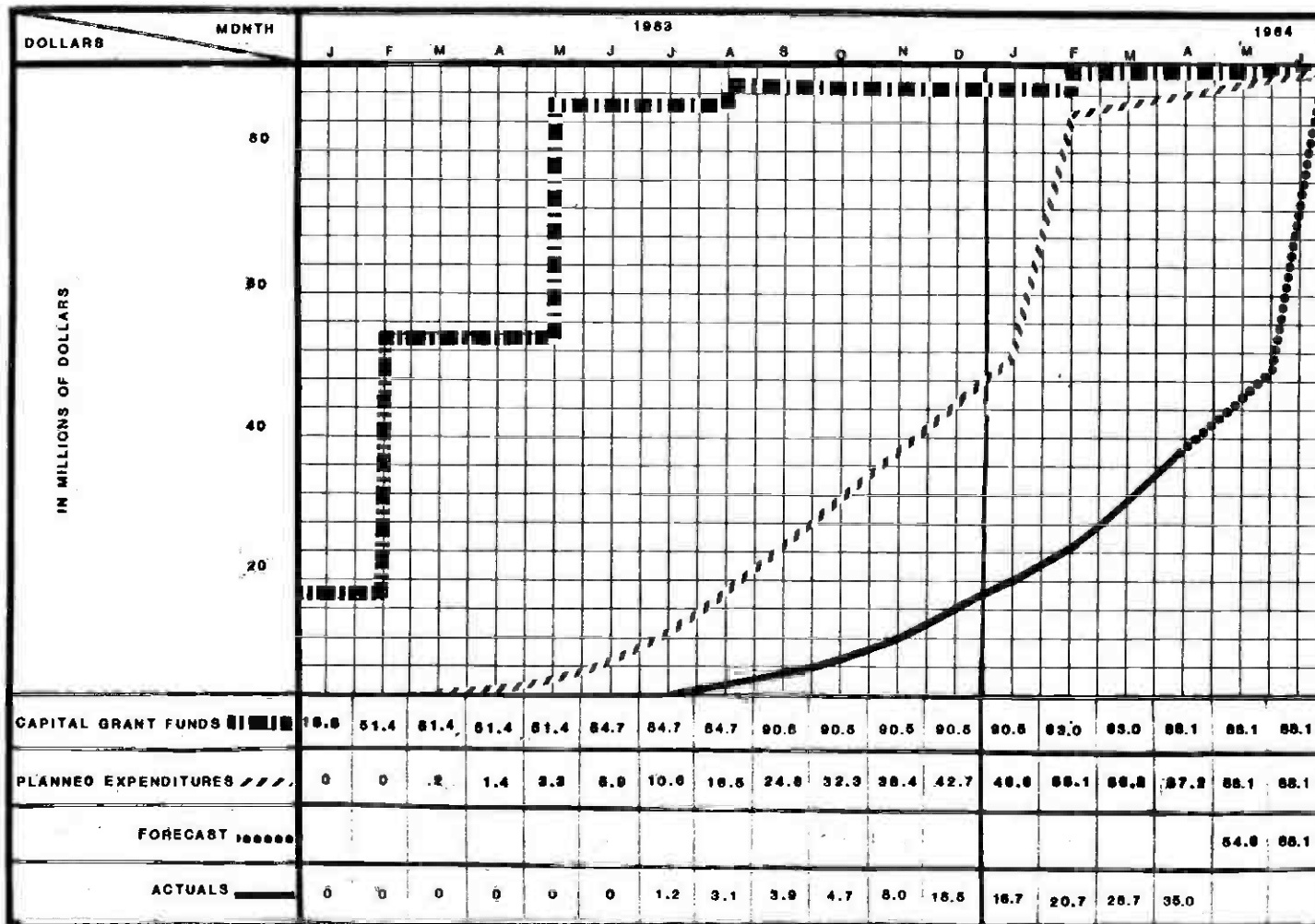
SCRTD METRO RAIL PROJECT  
CONTINUED PRELIMINARY ENGINEERING STATUS  
APRIL 1984

This section details the \$88.060 million currently budgeted for Continued Preliminary Engineering. Expenditures to date total \$34.989 million.

TSD Program Control has conducted an independent analysis of the cost and schedule status of each Section Designer contract within C.P.E. Accompanying each of these evaluations is a graph depicting Progress, Productivity, and Manpower status. (See Subcontractor Evaluations - Section III of this report.) Also included is a graph illustrating overall financial status of the C.P.E. Phase.

To date, \$5.8 million has been transferred from the P.E. line items to the same line items in C.P.E. When the P.E. phase is formally closed out any remaining funds will then be transferred from P.E. to C.P.E. Next a budget amendment request will be sent to U.M.T.A. to address the transferring of funds between line items within C.P.E. This transfer is necessary in order to distribute the funds to the MACS codes where monies have or will be spent during C.P.E.

**RTD METRO RAIL PROJECT**  
**CONTINUED PRELIMINARY ENGINEERING STATUS**  
**APRIL 1984**



SUMMARY OF CONTINUED PRELIMINARY ENGINEERING  
 BUDGET CHANGES  
 AS OF APRIL 1984

<u>Date</u>	<u>Cum. Budget Amount \$ (000's)</u>	<u>Explanation of Change</u>
January 1983	18.750	Initial C.P.E. funding Phase I
February 1983	51.380	Funding for acquisition of Santa Fe Rail Yard
June 1983	84.713	C.P.E. Phase II
September 1983	90.461	Transfer of P.E. underrun to C.P.E.
February 1984	93.037	Additional funding from LACTC
April 1984	88.060	Cancellation of PO #104

Status as of : 05/30/84  
WBS # : 11DAA3113

SCRTD METRO RAIL PROJECT  
CONTINUED PRELIMINARY ENGINEERING BUDGET  
SUMMARY BY MACS CODE (\$000'S)

AFE*	(MACS ** CODE) DESCRIPTION	UNOBLIGATED			OBLIGATIONS TO DATE			CURRENT WKG. BUDGET (7=3+6)	APPROVED BUDGET (8)	VARIANCE (9=8-7)
		RESERVED (1)	COMMITTED (2)	TOTAL (3=1+2)	UNEXPENDED (4)	EXPENDED (5)	TOTAL (6=4+5)			
[021]										
A.	(20.02.01) Purchase of Support Autos	\$ 18	\$ - 0 -	\$ 18	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ 18	\$ 18	\$ 0
B.	(20.02.02) Purchase/Installation of Support Equipment	42	150	192	- 0 -	68	68	260	260	0
TBD	(20.02.07) Purchase/Installation of MIS Equipment	77	- 0 -	77	823	- 0 -	823	900	900	0
TBD	(20.02.08) Purchase/Installation of Communications Equipment	100	- 0 -	100	- 0 -	- 0 -	- 0 -	100	100	0
C.	(20.08.01) Professional Services Contracts	277	177	454	17,367	30,584	47,951	48,405	48,405	0
D.	(20.15.02) Force Account Work	1,242	- 0 -	1,242	- 0 -	2,818	2,818	4,060	4,060	0

06/04/84  
P&C(WP)-7.7

Status as of : 05/30/84  
WBS # : 11DAA3113

SCRTD METRO RAIL PROJECT  
CONTINUED PRELIMINARY ENGINEERING BUDGET  
SUMMARY BY MACS CODE (\$000'S)

AFE*	(MACS ** CODE) DESCRIPTION	UNOBLIGATED		TOTAL (3=1+2)	OBLIGATIONS TO DATE			CURRENT WKG. BUDGET (7=3+6)	APPROVED BUDGET (8)	VARIANCE (9=8-7)
		RESERVED (1)	COMMITTED (2)		UNEXPENDED (4)	EXPENDED (5)	TOTAL (6=4+5)			
E.	(20.15.90) Other Supporting Services	78	147	225	- 0 -	1,117	1,117	1,342	1,342	0
G.	(20.16.00) General & Administrative	10	1	11	70	264	334	345	345	0
045	ROW Acquisition for Central Yard & Shops	32,458	- 0 -	32,458	34	138	172	32,630	32,630	0
GRAND TOTAL		\$ 34,302	\$ 475	\$ 34,777	\$ 18,294	\$ 34,989	\$ 53,283	\$ 88,060	\$ 88,060	\$ 0

NOTE: Contingencies are not included.

\* AFE - Authorization for Expenditure  
\*\* MACS - Management and Control System



CONTINUED PRELIMINARY ENGINEERING BUDGET & COST REPORT

PROFESSIONAL SERVICES CONTRACTS

April 1984

<u>Audit #</u>	<u>Contract</u>	<u>\$ Budget</u>	<u>\$ Actual</u>	<u>C=Completed or % Phys. Compl.</u>	<u>On Schedule</u>
<b>I. TRANSIT FACILITIES</b>					
3301	CalTrans	2,800,000	25,000	*	*
2256	CWDD	360,000	\$348,626	C	Yes
2440-2	DMJM/PBQ&D	50,000	50,000	C	Yes
2284-4	Lindvall Richter	185,000	144,155	*	Yes
3058	L.A. Co. Museum	24,500	16,333	C	Yes
2510-2	Harry Weese	50,000	50,000	C	Yes
2900-3	Schimpeler Corradino	30,000	- 0 -	C	Yes
3212	W.H. Patterson	7,000	3,766	C	Yes
3173	Dept. of Water & Power	270,000	- 0 -	*	*
3172	Pacific Bell	200,000	- 0 -	*	*
3237	Western Union Telegraph	60,000	- 0 -	*	*
3262	N.J. Maloney	1,500	- 0 -	*	*
3138	City Master Agreement	753,000	110,832	*	*
3211	Eugene Stan	7,000	2,778	*	*
N/A	CH2M Hill/Kellogg Corp.	24,900	- 0 -	*	*
N/A	John Gordon	20,000	- 0 -	*	*
N/A	Joseph Giovannini	20,000	- 0 -	*	*
N/A	Julia Brown	20,000	- 0 -	*	*
N/A	Bettye Saar	20,000	- 0 -	*	*
N/A	Alan Sieorty	20,000	- 0 -	*	*
<b>TOTAL TRANSIT FACILITIES</b>		<b>\$4,922,900</b>	<b>751,490</b>	<b>N/A</b>	<b>N/A</b>
<b>II. SYSTEMS DESIGN &amp; ANALYSIS</b>					
2434-5	Booz-Allen & Hamilton	237,549	237,549	C	Yes
2439-2	Kaiser Engineers	50,000	50,000	C	Yes
3090	Cons. Fire Prot. Dist.	95,200	67,152	*	*
3136	Booz-Allen & Hamilton	1,000,000	542,709	75	Yes
3170	Mellon Institute	24,900	- 0 -	*	*
<b>TOTAL SYSTEMS DESIGN &amp; ANALYSIS</b>		<b>\$1,407,649</b>	<b>897,410</b>	<b>N/A</b>	<b>N/A</b>

CONTINUED PRELIMINARY ENGINEERING  
BUDGET AND COST REPORT (cont'd)

<u>Audit #</u>	<u>Contract</u>	<u>\$ Budget</u>	<u>\$ Actual</u>	<u>C=Completed or % Phys. Compl.</u>	<u>On Schedule</u>
III. PROGRAM CONTROL					
3044	Sharon Clark	9,900	9,900	C	No
TOTAL PROGRAM CONTROL		\$ 9,900	\$ 9,900	N/A	N/A
IV. PLANNING					
3010	CRA	500,000	46,577	50	No
2797-2	Robert Harmon	50,000	50,000	C	Yes
3137	Jt. Dev. of Sta. Plans	573,000	304,795	50	Yes
3254	Schimpeler-Corradino	847,213	204,348	-0-	Yes
TOTAL PLANNING		\$ 1,970,213	\$605,720	N/A	N/A
V. REAL ESTATE - YARD & SHOPS ACQUISITION					
2963-2	AT&SF Railway	64,000	53,430	*	*
3032	Flavell	50,000	36,716	*	*
3033	Lea Associates	50,000	39,329	*	*
2994	TICOR	8,300	8,300	C	Yes
TOTAL YARD & SHOPS ACQUISITION		\$172,300	\$137,775	N/A	N/A
OTHER REAL ESTATE					
3000	County of L.A.	24,900	24,108	*	*
3116	Chicago Title Services	50,000	-0-	*	*
3102	Robert Swanson	22,500	13,200	*	*
3161	Eugene Guterrez	4,000	4,000	*	*
3162	Robert Jackson	3,500	3,500	*	*
3163	Ralph Laurain	3,750	3,750	*	*
3164	David Zoraster	3,500	3,500	*	*
3175	TICOR	75,000	8,000	*	*
3189	Joseph Gary	10,000	6,678	*	*
3139	William Helpes	4,250	4,250	*	*
3182	Thomas Scalora	8,500	4,250	*	*
3180	Lowell Steward Assoc.	2,500	2,500	*	*

CONTINUED PRELIMINARY ENGINEERING  
BUDGET AND COST REPORT (cont'd)

<u>Audit #</u>	<u>Contract</u>	<u>\$ Budget</u>	<u>\$ Actual</u>	C=Completed or <u>% Phys. Compl.</u>	<u>On Schedule</u>
OTHER REAL ESTATE (Cont'd)					
3150	Jack Jue	3,500	3,500	*	*
3181	Norman Eichel	8,500	4,250	*	*
3179	Lee Hill	2,500	2,500	*	*
3209	Arthur Anderson	1,550	1,550	*	*
3261	Robert Olson	1,500	-0-	*	*
3260	Milton Tynan	1,600	-0-	*	*
TOTAL OTHER REAL ESTATE		\$231,550	89,536	N/A	N/A
TOTAL REAL ESTATE		\$403,850	\$227,311	N/A	N/A
VI. LEGAL					
3009	MPR&T	24,500	-0-	*	*
2990	Bill Hecht	24,500	-0-	*	*
TOTAL LEGAL		\$ 49,000	\$ -0-	N/A	N/A
VII. MISCELLANEOUS CONTRACTS					
3030	Dillon Reed & Co.	24,900	-0-	*	*
3065	David B. Ashley	7,000	6,911	C	*
3096	First Boston Corp.	24,900	24,900	*	*
TOTAL MISCELLANEOUS CONTRACTS		\$ 56,800	\$31,811	N/A	N/A

CONTINUED PRELIMINARY ENGINEERING  
BUDGET AND COST REPORT (cont'd)

<u>Audit #</u>	<u>Contract</u>	<u>\$ Budget</u>	<u>\$ Actual</u>	<u>C=Completed or % Phys. Compl.</u>	<u>On Schedule</u>
VIII. GENERAL CONSULTANT					
2967	MRTC	39,302,960	28,198,363	N/A	N/A
TOTAL GENERAL CONSULTANT		\$39,302,960	\$28,198,363	N/A	N/A
GRAND TOTAL C.P.E.		\$48,123,272	\$30,722,005	N/A	N/A

\*

Note: Asterisked (\*) items indicate Peer Review Boards, General Managers Transit Technical Advisory Committee and "As Needed" Consultants for whom schedule status is not relevant.

N/A = Not Available

CONTINUING PRELIMINARY ENGINEERING

UNOBLIGATED-RESERVED BUDGET AMOUNTS-PROFESSIONAL SERVICES CONTRACTS

Listed below are budget amounts reserved for Professional Services Contracts, i.e., budget amounts for work which is anticipated but not yet committed. In parenthesis is the date the budget amounts are expected to be committed (authorized for solicitation by the Board, advertised, or for which negotiations have been started pursuant to an approved purchase requisition). The list is subdivided into two parts: "Proposed Contract Changes" which identifies proposed amendments to current contracts and "Proposed New Contracts" which identifies dollar amounts in areas where new contracts will be needed.

On a monthly basis this list is updated reflecting the most current information on proposed new or amended contracts, dollar amounts, and expected commitment dates.

I. PROPOSED CONTRACT CHANGES:

TOTAL PROPOSED CONTRACT CHANGES	\$	- 0 -
---------------------------------	----	-------

II. PROPOSED NEW CONTRACTS:

Transit Facilities

o Value Engineering Consultants	\$	75,200
o Department of Water & Power		<u>200,000</u>

Total Transit Facilities	\$	275,200
--------------------------	----	---------

Real Estate - Yard & Shops Acq.

o Agamata & Associates	\$	<u>1,800</u>
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Total Real Estate	\$	1,800
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TOTAL PROPOSED NEW CONTRACTS	\$	277,000
------------------------------	----	---------

GRAND TOTAL RESERVED AMOUNT	\$	277,000
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CONTINUING PRELIMINARY ENGINEERING

CURRENT BUDGET: UNOBLIGATED-COMMITTED PROFESSIONAL SERVICES CONTRACTS

Listed below are Professional Services Contracts which are forecasted but unobligated as of the status date. These are budget amounts for work which has been authorized for soliciation by the Board, has been advertised, or for which negotiations have been started pursuant to an approved purchase requisition. In parenthesis is the date the contract is expected to be obligated (signed by the General Manager). The list is subdivided into two parts: "Proposed Contract Changes" which identifies proposed amendments to current contracts; "Proposed New Contracts" which in dollar amounts in areas where new contracts will be needed.

On a monthly basis this list is updated reflecting the most current information on proposed new or amended contracts, dollars amounts, and expected obligation dates.

I. PROPOSED CONTRACT CHANGES:

TOTAL PROPOSED CONTRACT CHANGES \$ - 0 -

II. PROPOSED NEW CONTRACTS:

Transit Facilities

o Illinois State Museum Society	\$ 24,000
o Foster Engineering	24,900
o Colin Busby	24,000
o Leslie Marcus	24,000
o Richard Proctor	<u>24,000</u>

Total Transit Facilities \$ 120,900

Systems Design & Analysis

o SRI	20,000
o MIDCOM	10,000
o SCE	<u>3,500</u>

Total SD & A \$ 33,500

Real Estate

o Business Valuation Services	\$ 8,500
o Crockett & Associates	5,900
o Industrial Appraisal Co.	<u>7,925</u>

Total Real Estate \$ 22,325

TOTAL PROPOSED NEW CONTRACTS \$ 176,725

GRAND TOTAL COMMITTED AMOUNT \$ 176,725

SECTION III  
FINAL DESIGN

SCRTD METRO RAIL PROJECT

FINAL DESIGN STATUS

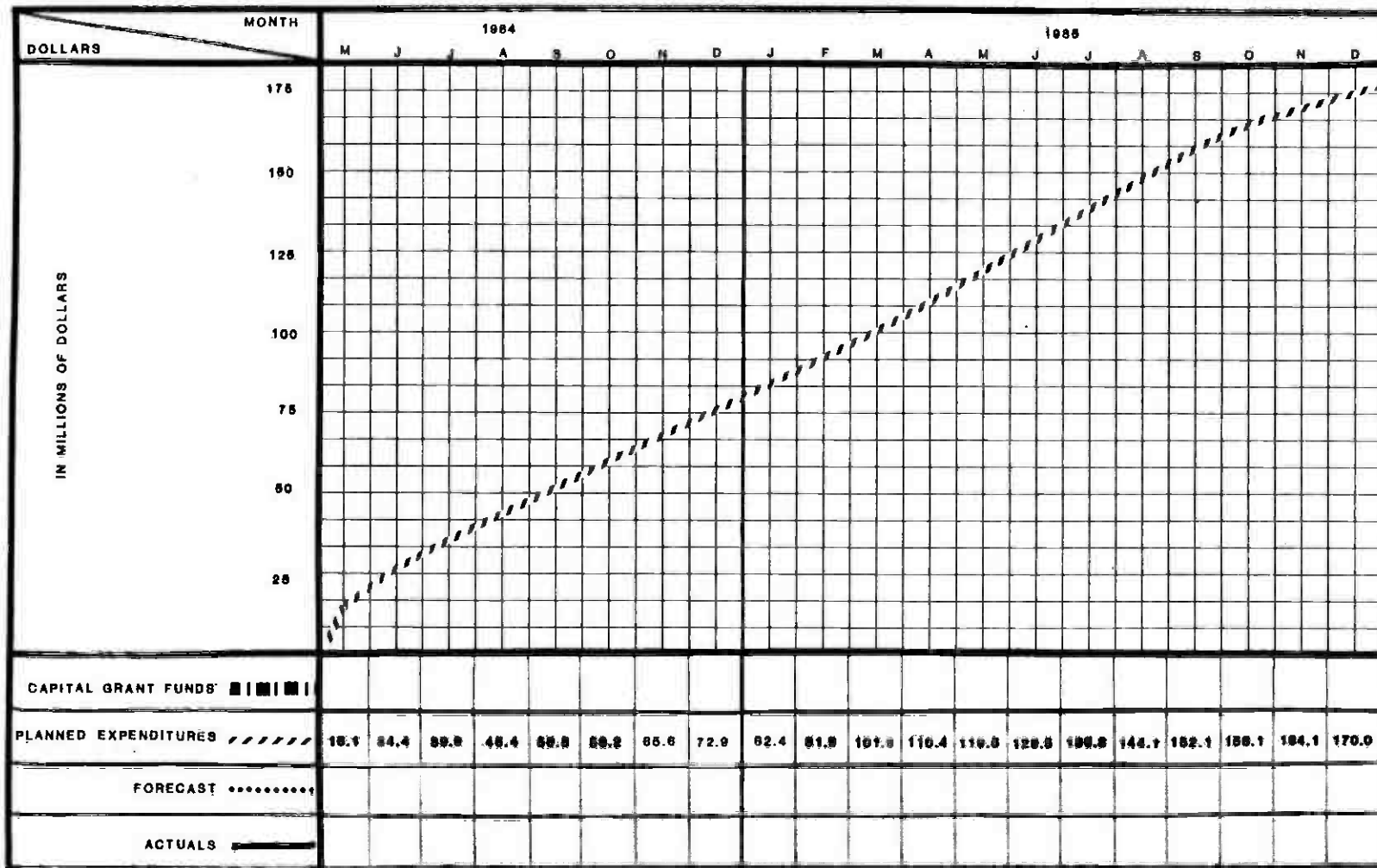
APRIL 1984

This section details all Final Design contracts. Currently, no budget is available for any committed or reserved contracts so these contracts will remain unobligated until Final Design funding is awarded.

The accompanying graph illustrates the Planned Expenditures of the anticipated grant of \$170.0 million.



**RTD METRO RAIL PROJECT  
FINAL DESIGN STATUS  
APRIL 1984**



-24-

SUMMARY OF FINAL DESIGN  
BUDGET CHANGES  
AS OF APRIL 1984

<u>Date</u>	<u>Cum. Budget Amount \$ (000's)</u>	<u>Explanation of Change</u>
-------------	----------------------------------------------	------------------------------

-0-

05/30/84  
P&C(WP)-8.22

Status as of : 05/30/84  
WBS # : 11DAA3113

SCRTD METRO RAIL PROJECT  
FINAL DESIGN BUDGET  
SUMMARY BY MACS CODE (\$000'S)

AFE* 021	(MACS ** CODE) DESCRIPTION	UNOBLIGATED			OBLIGATIONS TO DATE			CURRENT WKG. BUDGET (7=3+6)	APPROVED BUDGET (8)	VARIANCE (9=8-7)
		RESERVED (1)	COMMITTED (2)	TOTAL (3=1+2)	UNEXPENDED (4)	EXPENDED (5)	TOTAL (6=4+5)			
A.	(20.02.01) Purchase of Support Autos	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ 0
B.	(20.02.02) Purchase/Installation of Support Equipment	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	0
C.	(20.08.01) Professional Services Contracts	67,123	8,708	75,831	- 0 -	- 0 -	- 0 -	75,831	- 0 -	[75,831]
D.	(20.15.02) Force Account Work	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	0
E.	(20.15.90) Other Supporting Services	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	0
G.	(20.16.00) General & Administrative	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	0
GRAND TOTAL		\$ 67,123	\$ 8,708	\$ 75,831	\$ - 0 -	\$ - 0 -	\$ - 0 -	\$ 75,831	\$ - 0 -	\$ [75,831]

\* AFE - Authorization for Expenditure  
\*\* MACS - Management and Control System

FINAL DESIGN

UNOBLIGATED-RESERVED BUDGET AMOUNTS-PROFESSIONAL SERVICES CONTRACTS

Listed below are budget amounts reserved for Professional Services Contracts, i.e., budget amounts for work which is anticipated but not yet committed. In parenthesis is the date the budget amounts are expected to be committed (authorized for solicitation by the Board, advertised, or for which negotiations have been started pursuant to an approved purchase requisition). The list is subdivided into two parts: "Proposed Contract Changes" which identifies proposed amendments to current contracts and "Proposed New Contracts" which identifies dollar amounts in areas where new contracts will be needed.

On a monthly basis this list is updated reflecting the most current information on proposed new or amended contracts, dollar amounts, and expected commitment dates.

I. PROPOSED CONTRACT CHANGES:

TOTAL PROPOSED CONTRACT CHANGES \$ - 0 -

II. PROPOSED NEW CONTRACTS:

General Consultant  
o MRTC FY'85 AWP \$ 67,123,000

TOTAL PROPOSED NEW CONTRACTS \$ 67,123,000

GRAND TOTAL RESERVED AMOUNT \$ 67,123,000

FINAL DESIGN

CURRENT BUDGET: UNOBLIGATED-COMMITTED PROFESSIONAL SERVICES CONTRACTS

Listed below are Professional Services Contracts which are forecasted but unobligated as of the status date. These are budget amounts for work which has been authorized for solicitation by the Board, has been advertised, or for which negotiations have been started pursuant to an approved purchase requisition. In parenthesis is the date the contract is expected to be obligated (signed by the General Manager). The list is subdivided into two parts: "Proposed Contract Changes" which identifies proposed amendments to current contracts; "Proposed New Contracts" which in dollar amounts in areas where new contracts will be needed.

On a monthly basis this list is updated reflecting the most current information on proposed new or amended contracts, dollars amounts, and expected obligation dates.

I. PROPOSED CONTRACT CHANGES:

TOTAL PROPOSED CONTRACT CHANGES	\$	- 0 -
---------------------------------	----	-------

II. PROPOSED NEW CONTRACTS:

<u>Construction Management</u>		
o Construction Management	\$	8,708,000
TOTAL PROPOSED NEW CONTRACTS	\$	8,708,000
GRAND TOTAL COMMITTED AMOUNT	\$	8,708,000

SECTION IV  
TOTAL PROJECT

SCRTD METRO RAIL PROJECT  
TOTAL PROJECT STATUS  
APRIL 1984

This section details the \$121.056 million currently budgeted for the Metro Rail Project. The expenditures to date for the total project are \$67.852 million.

The accompanying graph illustrates the planned expenditures, \$120.1 million, against the actual expenditures \$67.9 million. The variance is due primarily to the late issuance of contract NTP's and the late Acquisition of R-O-W properties.





SUMMARY OF TOTAL PROJECT  
BUDGET CHANGES  
AS OF APRIL 1984

<u>Date</u>	<u>Cum. Budget Amount \$ (000's)</u>	<u>Explanation of Change</u>
July 1982	27.300	Initial P.E. funding Phase I & II
August 1982	38.843	P.E. Phase III
January 1983	57.593	C.P.E. Phase I
February 1983	90.223	Funding for acquisition of Santa Fe Rail Yard
June 1983	123.556	Net Project Budget
February 1984	126.056	Additional funding from LACTC
April 1984	121.056	Cancellation of P.O. #104

# METRO RAIL PROJECT

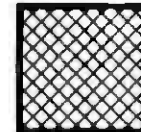
## FUNDING DISTRIBUTION

### TOTAL PROJECT

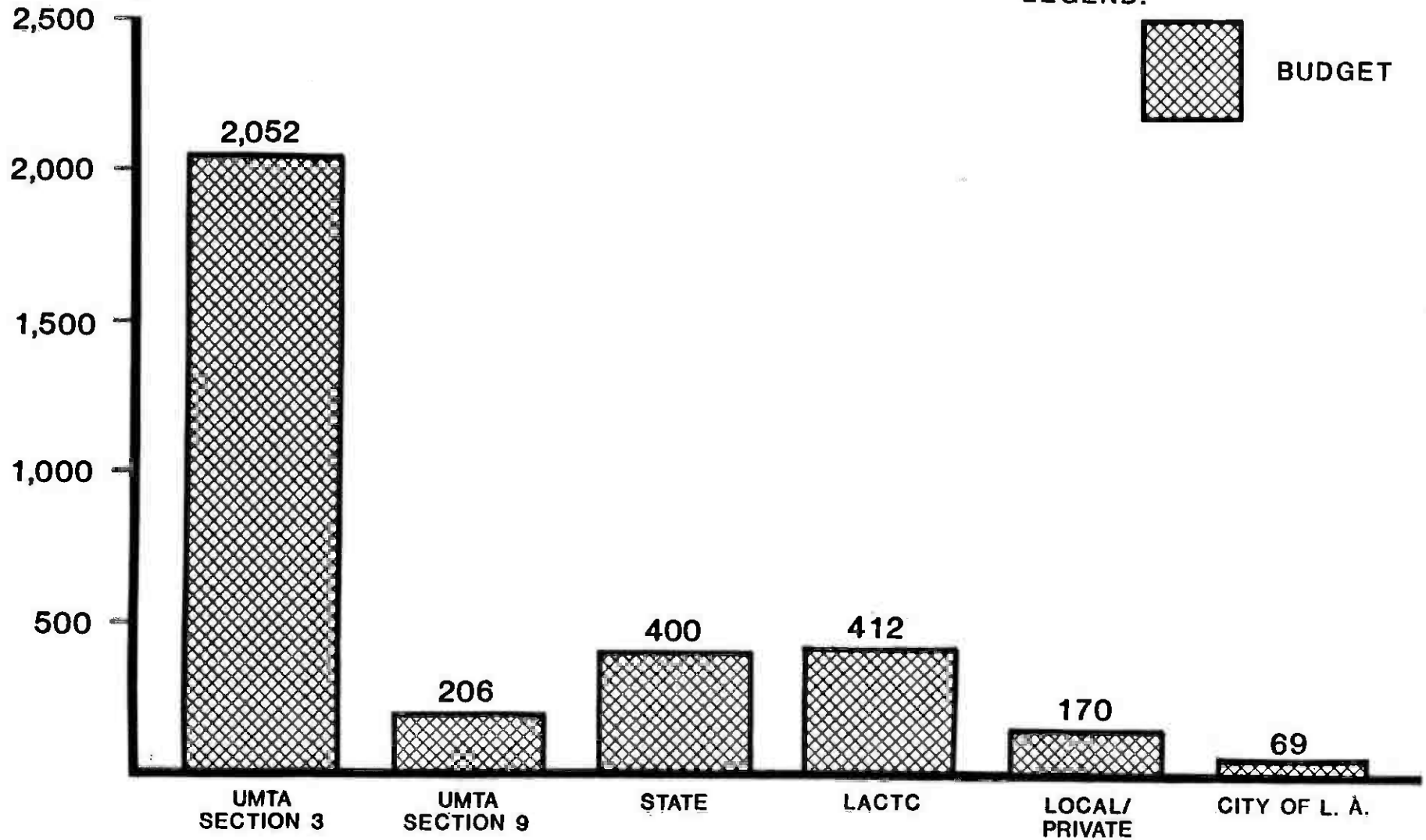
AS OF 04/30/84

MILLIONS  
OF \$

LEGEND:



BUDGET



# METRO RAIL PROJECT

BUDGET VS. ACTUAL

TOTAL PROJECT

AS OF 04/30/84

MILLIONS  
OF \$

2,500

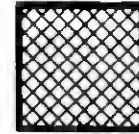
2,000

1,500

1,000

500

LEGEND:



BUDGET



ACTUAL

2,180.4

344.5

203.1

326.4

113.4

141.2

AGENCY

ENGR. &  
DESIGN

CONSTRUC-  
TION

SYSTEMS  
PROCUREMENT

REAL  
ESTATE

CONTINGENCY

06/04/84  
P&C(WP)-7.6

Status as of : 05/30/84  
WBS # : 11DAA3113

SCRTD METRO RAIL PROJECT  
TOTAL PROJECT BUDGET  
SUMMARY BY MACS CODE (\$000'S)

AFE*	(MACS ** CODE) DESCRIPTION	UNOBLIGATED			OBLIGATIONS TO DATE			CURRENT WKG. BUDGET (7=3+6)	APPROVED BUDGET (8)	VARIANCE (9=8-7)
		RESERVED (1)	COMMITTED (2)	TOTAL (3=1+2)	UNEXPENDED (4)	EXPENDED (5)	TOTAL (6=4+5)			
021										
A.	(20.02.01) Purchase of Support Autos	\$ 18	\$ - 0 -	\$ 18	\$ - 0 -	\$ 22	\$ 22	\$ 40	\$ 40	\$ 0
B.	(20.02.02) Purchase/Installation of Support Equipment	42	150	192	- 0 -	1,168	1,168	1,360	1,360	0
TBD	(20.02.07) Purchase/Installation of MIS Equipment	77	- 0 -	77	823	- 0 -	823	900	900	0
TBD	(20.02.08) Purchase/Installation of Communications Equipment	100	- 0 -	100	- 0 -	- 0 -	- 0 -	100	100	0
C.	(20.08.01) Professional Services Contracts	67,400	8,885	76,285	17,500	54,687	72,187	148,472	72,641	[75,831]
D.	(20.15.02) Force Account Work	1,242	- 0 -	1,242	- 0 -	9,317	9,317	10,559	10,559	0

06/04/84  
P&C(WP)-7.6

Status as of : 05/30/84  
WBS # : 11DAA3113

SCRTD METRO RAIL PROJECT  
TOTAL PROJECT BUDGET  
SUMMARY BY MACS CODE (\$000'S)

AFE*	(MACS ** CODE) DESCRIPTION	UNOBLIGATED			OBLIGATIONS TO DATE			CURRENT WKG. BUDGET (7=3+6)	APPROVED BUDGET (8)	VARIANCE (9=8-7)
		RESERVED (1)	COMMITTED (2)	TOTAL (3=1+2)	UNEXPENDED (4)	EXPENDED (5)	TOTAL (6=4+5)			
E.	(20.15.90) Other Supporting Services	78	147	225	0	2,136	2,136	2,361	2,361	0
G.	(20.16.00) General & Administrative	10	1	11	70	384	454	465	465	0
045	ROW Acquisition for Central Yard & Shops	32,458	- 0 -	32,458	34	138	172	32,630	32,630	0
GRAND TOTAL		\$ 101,425	\$ 9,183	\$ 110,608	\$ 18,427	\$ 67,852	\$ 86,279	\$ 196,887	\$ 121,056	\$ [75,831]

Note: Contingencies are not included.

\* AFE - Authorization for Expenditure  
\*\* MACS - Management and Control System

SECTION V  
SUBCONTRACTOR EVALUATIONS

YIP/AR/0011 1/1/99

STATUS AS OF APRIL 1984

METRO RAIL PROJECT  
SECTION DESIGN  
SUBCONTRACT EVALUATION SUMMARY

UNIT NO.	DESCRIPTION	TOTAL % COMPLETE		CURRENT INCRE- MENTAL PROGRESS	PRODUCTIVITY BASED ON		NEGOTIATED CONTRACT AMOUNT	FORECAST AT COMPLETION		TO COMPLETE AVERAGE EFFICIENCY *
		F'CAST	ACTUAL		MHRS	\$\$		MRTC	TSD PROJECTED	
A100	YARD AND SHOPS	67%	55%	5	84%	89%	\$ 4,080,878	\$ 5,112,000	\$ 5,743,820	118%
A135	UNION STATION	80%	65%	7	133%	139%	2,946,000	3,645,000	2,622,302	66%
A140	CIVIC CENTER/5TH & HILL/LINE	30%	30%	5.5	90%	98%	6,203,707	6,213,000	6,339,796	101%
A165	7TH & FLOWER	65%	65%	11	123%	114%	2,129,587	2,707,000	2,374,561	82%
A170	WILSHIRE/ALVARADO	55%	60%	10	119%	114%	3,119,430	3,413,000	2,993,860	84%
A195	WILSHIRE/VERMONT	72%	46%	6	91%	97%	1,541,126	2,129,000	2,194,845	103%
A220	WILSHIRE/NORMANDIE & WILSHIRE/WESTERN	17%	23%	11	152%	146%	4,676,695	4,828,000	3,306,849	91%
A240	WILSHIRE/CRENSHAW	15%	18%	10	164%	125%	2,394,790	2,610,000	2,088,000	96%
A245	WILSHIRE/LA BREA	50%	46%	13.5	151%	155%	1,608,579	1,873,000	1,208,387	77%
A250	WILSHIRE/FAIRFAX	5%	6%	4	197%	193%	3,956,421	4,462,000	2,311,917	97%
A275	FAIRFAX/BEVERLY	25%	24%	12	138%	126%	2,250,000	2,475,000	1,964,286	94%
A310	FAIRFAX/SANTA MONICA & LA BREA/SUNSET	12%	12%	4.5	119%	116%	4,409,415	4,414,000	3,805,172	98%
A350	HOLLYWOOD/CAHUENGA	20%	11%	3	93%	86%	2,071,181	2,293,000	2,666,279	102%
A410	LINE FROM HOLLYWOOD/CAHUENGA TO UNIVERSAL CITY	25%	21%	8.5	116%	104%	2,627,160	2,627,000	2,525,962	99%
A415	HOLLYWOOD BOWL	15%	19%	12	191%	187%	2,013,910	2,014,000	1,077,005	90%
A425	UNIVERSAL CITY	15%	22%	13.5	127%	119%	2,403,180	2,415,000	2,029,412	96%
A430	LINE FROM UNIVERSAL CITY TO NORTH HOLLYWOOD	23%	26%	9.5	160%	169%	1,968,766	2,001,000	1,184,024	87%
A445	NORTH HOLLYWOOD	10%	8%	1.9	100%	80%	2,141,868	2,157,000	2,696,250	102%
TOTALS							\$ 52,542,693	\$ 57,388,000	\$ 49,132,727	

\* FOR CONTRACTS TO BE COMPLETED AT MRTC'S FORECAST

## OVERALL ASSESSMENT - COST

The changes made by MRTC to the April '84 Progress Report raise questions as to the quality of the contract performance information contained in this report. The quality of the performance information has been an ongoing concern of RTD Program Control. Meetings have held between RTD and MRTC to improve the MRTC reporting systems. However, as a result of the changes MRTC made in the April '84 Progress Report, this month's RTD contract assessments were made with less than adequate performance data.

For example, all of the monthly forecasts (labor, cost and progress) that were added to the MRTC Progress Report in February '84 were deleted in April. The MRTC stated that the forecasts were removed because they were incorrect. All of the Section Design Contracts are individual contracts, and as such a couple of forecasts could be wrong and need re-evaluation. However, the blanket statement that all forecasts were wrong and, therefore, deleted is not an acceptable answer. The baseline from which performance is measured must remain static and not change from month to month. Revisions to this baseline will be recognized by RTD, but only when sufficient backup is presented to support the revision.



# OVERALL CONTRACT SCHEDULING ASSESSMENT

## FACILITIES DESIGN

As of the status date (4/30/84) there has been no improvement of complete monthly submittals. The lack of complete submittals for reviews continues to be unacceptable.

Contracts A140, A170, A195, and A410 reflect significant delays during the reporting period.

## SYSTEMWIDE

A substantial amount of contracts are appearing behind schedule during this reporting period.

MRTC is formulating bar chart schedules to be submitted on a monthly basis for review/status purposes.

### CONTRACT STATUS AS OF 4/30/84

CONTRACT NO.	ON SCHED	LATE	UPDATE NOT SUBMITTED	CONTRACT NO.	ON SCHED	LATE	UPDATE NOT SUBMITTED
A110		6 wks	No	A610	X		
A112		14 wks	No	Thru			
A114		4 wks	No	A618			
A130		11 wks	No	A620		20 wks	
A135		8 wks	Partial	A630/31	X		
A140		8 wks	No	A640	X		
A165		6 wks	Partial	A650		5 wks	
A170		6 wks	Yes	A660	X		
A195		27 wks	No	A670		2 wks	
A220		11 wks	Partial	A710		2 wks	
A240	X		Yes	A720		5 wks	
A245		3 wks	Partial	A740		4 wks	
A250	X		Yes	A760	X		
A275	X		Yes	A750	X		
A310	X		Partial				
A350		4 wks	Yes				
A410		5 wks	Yes				
A415	X		No				
A425	X		Partial				
A430	X		Partial				
A445	X		Partial				



RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A100, YARD & SHOPS (A110, A112, A114, A130)  
DESIGN CONTRACTOR - DMJM/PBQD

COMMENTS ON MRTIC PROGRESS REPORT

- o NO MENTION OF PROBLEMS WITH THE ACQUISITION OF YARD & SHOPS PROPERTY WHICH WILL IMPEDE CONTRACT PROGRESS AND IMPACT COSTS AND SCHEDULING.

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	N/A	67	55
INCREMENTAL PROGRESS	N/A	9	5
COST	4,081,000	5,112,000	3,167,000
MANHOURS	87,900	110,000	72,400
CONTRACT DURATION	16	17	10

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MTRS. SPENT}} = \frac{.55 \times 110,000}{72,400} \times 100 = 84\%$$

(CUMULATIVE)

AN UNSATISFACTORY PRODUCTIVITY CALCULATION.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .55 \times 5,112,000 = \$2,811,600$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 55% COMPLETE, HAS THEORETICALLY EARNED \$2,811,600.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{2,811,600}{3,167,000} = \$ .89$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$.89 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. A LOW C.P.I. WILL LEAD TO FURTHER COST OVERRUNS.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 3,167,000 - 2,811,600 = \$ 355,400$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY OVERRUN BY \$355,400. A SUBSTANTIAL OVERRUN AT THIS STAGE OF THE CONTRACT.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A100, YARD & SHOPS (A11, A112, A114, A130)  
DESIGN CONTRACTOR - DMJM/PBQD

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \text{ACTUAL COSTS SPENT} \\ \text{(CUMULATIVE)} \end{array} = \frac{3,167,000}{5,112,000} = 62\%$$

THE CONTRACTOR HAS SPENT 62% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 55%. THIS CONTRACTOR IS EXPENDING COST RESOURCES AT A MUCH HIGHER RATE THAN ACCOMPLISHING PHYSICAL PROGRESS.

$$\begin{array}{l} \text{EST. AT COMPLETION} \\ \text{(CALCULATED - EAC)} \end{array} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{5,112,000}{.89} = \$5,743,820$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$5,743,820. THIS REPRESENTS A COST OVERRUN OF \$1,662,820 OR A 41% INCREASE. THE 35 CHANGE REQUESTS ARE REFLECTED IN THE ESTIMATE AT COMPLETION COSTS.

$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{5,112,000 - 2,811,500}{5,112,000 - 3,167,000} = 118\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 118% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST. THIS PRODUCTIVITY FACTOR IS REALISTICALLY MOST UNLIKELY TO BE OBTAINED BASED ON PRIOR PRODUCTIVITY HISTORY OF THIS CONTRACTOR.

CONCLUSION

THE MAIN PROBLEM IS STILL THE ACQUISITION OF YARD & SHOP PROPERTY FROM SANTA FE. THE PROBLEMS OF YARD AND BUILDING LAYOUTS HAVE BEEN RESOLVED.

05/31/84  
PC-14.20<1>

## SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A110 Yard Clearing, Grading	AWARD: 07/07/83
DESIGN SUBCONTRACTOR: DMJM/PBQD	NTP: 07/13/83
PROJECT MANAGER (TSD/MRTC): Levy/McCauley	DURATION: 459 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE (CD)
CONTROL SYSTEM SUBMITTAL	07/27/83	-	10/28/83	-
IN PROG. SUBMITTAL (60%)	11/16/83	-	11/16/83	-
PRE FINAL SUBMITTAL (85%)	01/04/84	-	01/16/84	-
FINAL SUBMITTAL (100%)	02/29/84	-	04/26/84	-
BID DOCUMENTS	02/29/84	-	04/26/84	-
TIME OF PERFORMANCE	10/15/84	11/30/84*	-	-46

### RESOLUTIONS OF LAST PERIODS PROBLEMS:

Not resolved - As reported in the previous four progress reports, an updated network (CPM) has not been received by TSD Program Control. Written communications have been transmitted to MRTC Program Control on several occasions regarding this matter. The Network CPM covers Contracts A110, A112, A114 and A130.

### AREAS OF CONCERN:

The overall slippage of 57 days for submitting the Final Submittal (100%) will not affect the overall A100 contract. The reason is that the right-of-way has not been purchased, and Notice to Proceed cannot be issued as originally scheduled, 5/30/84.

### COMMENTS:

\* Per the April MRTC Progress Report, MRTC has forecast a 46-day slippage (11/30/84) of the completion date for contract A100. The last report, March, had forecast a completion date of 12/30/84. This month's forecast represents the latest MRTC project management estimated time of completion.

### PERFORMANCE ASSESSMENT:

Section Designer has been shown in the MRTC bi-weekly Design Status Report to have completed work. However, Section Designer may be required to work on this contract after the 100% Design Review meeting is held on June 15, 1984.

05/31/84  
PC-14.20<2>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: All2 Yard Building, Utilities and Landscaping  
DESIGN SUBCONTRACTOR: DMJM/PBQD  
PROJECT MANAGER (TSD/MRTC): Levy/McCauley  
AWARD: 07/07/83  
NTP: 07/13/83  
DURATION: 459  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	07/27/83	-	10/28/83	-
IN PROG. SUBMITTAL (60%)	02/01/84	-	01/27/84	-
	-	06/13/84*	-	-
PRE FINAL SUBMITTAL (85%)	03/08/84	08/15/84	-	-160
FINAL SUBMITTAL (100%)	05/23/84	09/14/84	-	-104
BID DOCUMENTS	05/23/84	09/14/84	-	-104
TIME OF PERFORMANCE	10/15/84	11/30/84	-	- 46

\* The Section Designer will be submitting a second In-Progress Submittal (60%) due to redesign of Main Shop Building. The redesign will include the enlargement of the Service & Inspection area and the addition of the transportation function previously included in Contract All3 (now deleted).

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Section Designer has been given direction to proceed with the redesign of the Main Shop Building.

AREAS OF CONCERN:

There are no open issues remaining.

COMMENTS:

Section Designer has been given go ahead on all All2 design work. Up to this point, most slippage has been reported to be caused by TSD direction to redesign the Main Shop Building.

PERFORMANCE ASSESSMENT:

Section Designer is currently behind schedule. The revised In-Progress Submittal (60%) is forecast for 6/13/84. The Pre-Final Submittal (85%) is fourteen (14) weeks behind schedule.

05/31/84  
PC-14.20<3>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: All4 Maintenance of Way Building	AWARD: 07/07/83
DESIGN SUBCONTRACTOR: DMJM/PBQD	NTP: 07/13/83
PROJECT MANAGER(TSD/MRTC): Levy/McCauley	DURATION: 459 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	07/13/83	-	10/28/83	-
IN PROG. SUBMITTAL (60%)	-	-	01/27/84	-
PRE FINAL SUBMITTAL (85%)	04/25/84	05/23/84	-	-28
FINAL SUBMITTAL (100%)	06/13/84	07/16/84	-	-33
BID DOCUMENTS	06/13/84	07/16/84	-	-33
TIME OF PERFORMANCE	10/15/84	11/30/84	-	-46

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Section Designer has been given direction to proceed with the redesign of the Main Shop Building.

AREAS OF CONCERN:

There are no open issues remaining.

COMMENTS:

Forecast dates for construction are not available from MRTC. A revised schedule for All4 will be established after right-of-way is purchased.

PERFORMANCE ASSESSMENT:

Section Designer is currently behind schedule. The Pre-Final Submittal (85%) is four weeks behind schedule.

05/31/84  
PC-14.20<4>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A130 Line Subway to Union Station	AWARD: 07/07/83
DESIGN SUBCONTRACTOR: DMJM/PBQD	NTP: 07/07/83
PROJECT MANAGER (TSD/MRTC): Levy/McCauley	DURATION: 459 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	07/27/83	-	10/28/83	-
IN PROG. SUBMITTAL (60%)	03/07/84	05/16/84	-	-77
PRE FINAL SUBMITTAL (85%)	05/02/84	07/11/84	-	-70
FINAL SUBMITTAL (100%)	06/27/84	09/05/84	-	-70
BID DOCUMENTS	06/27/84	09/05/84	-	-70
TIME OF PERFORMANCE	10/15/84	11/30/84	-	-46

RESOLUTIONS OF LAST PERIODS PROBLEMS:

No specific problems reported last period.

AREAS OF CONCERN:

There were no open issues reported in April.

COMMENTS:

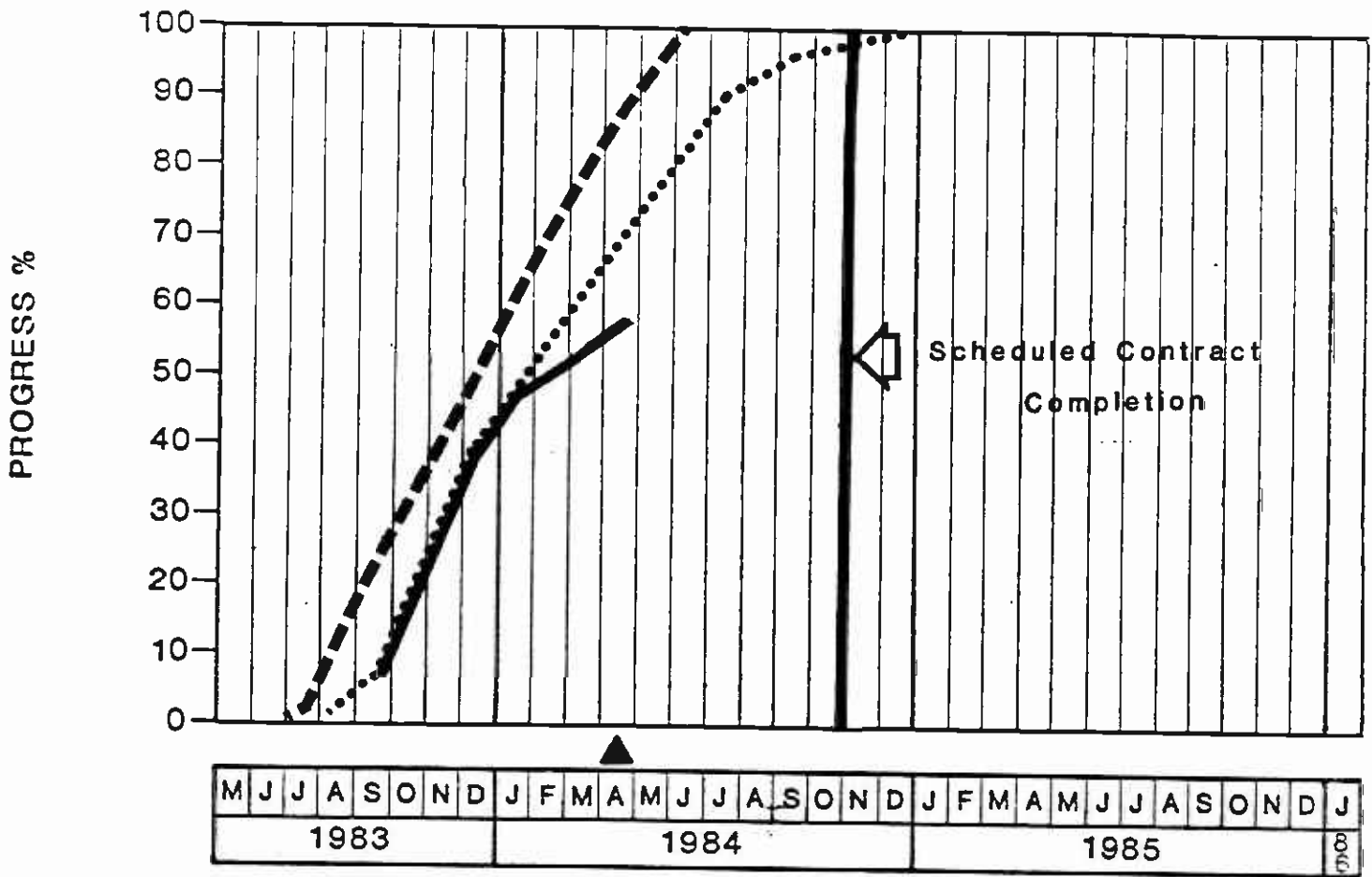
The forecast dates did not slip during April. The A130 schedule will be reviewed during May to insure forecast dates will be met.

PERFORMANCE ASSESSMENT:

Section Designer is currently behind schedule. The In-Progress Submittal (60%) is eleven (11) weeks behind schedule.

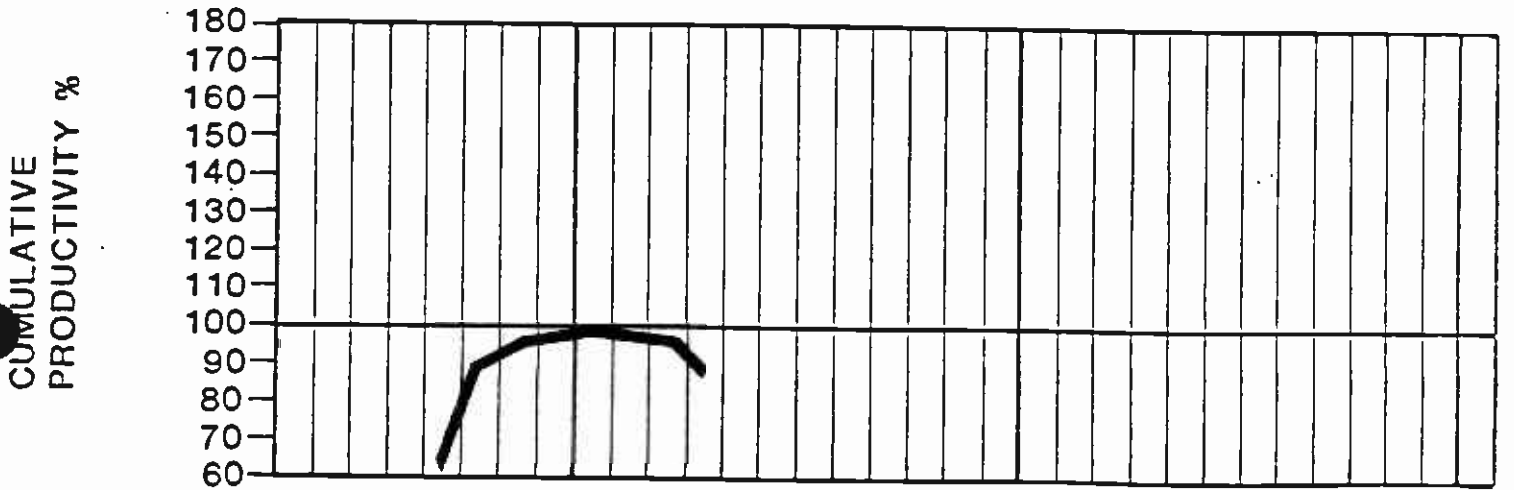
**MTA LIBRARY**

MRTC	PLAN	-----
PROGRESS	ACTUAL	—————
REPORT	FORECAST	.....



M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
1983								1984								1985								8								

MRTC REPORT	PLANNED		ACTUAL		FORECAST	
	2	12	0	5	2	5
	20	29	15	25	15	25
	38	35	35	35	43	
	47	43	43	43	52	
	57	N/A	N/A	52	67	
	67	58	50	67	78	
	78	67	55	73	84	
	84	73	78	84	92	
	92	84	89	92	100	
	100	89	92	95		
		92	98	98		
		98	100	100		



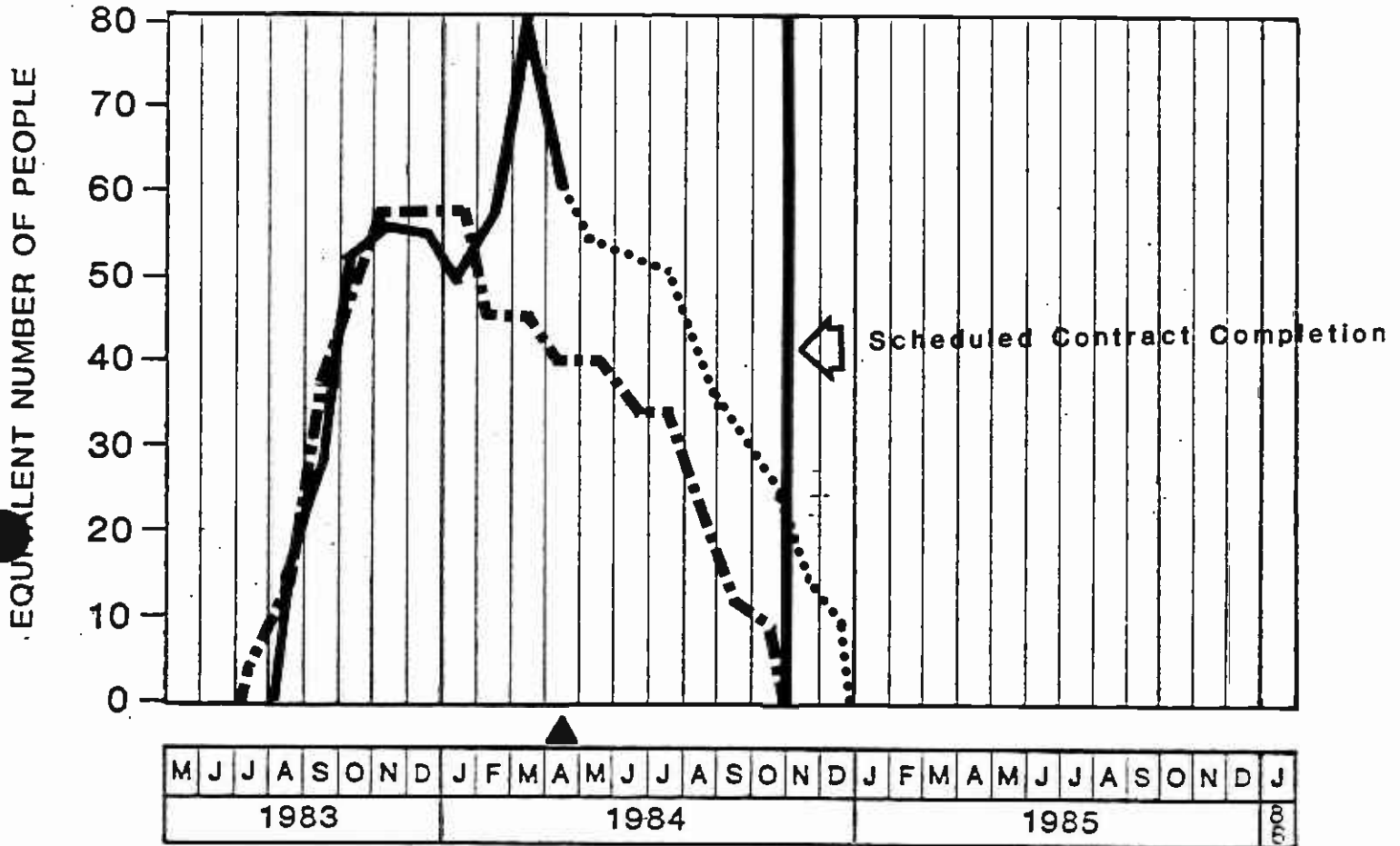


CONTRACT # A100

DESCRIPTION Main Yard and Shops

SECTION DESIGNER DMJM/PBQD

### MANPOWER PLAN



PLANNED 

FORECAST 

ACTUAL 

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A135, UNION STATION  
DESIGN CONTRACTOR - HARRY WEESE & ASSOCIATES (HWA)

COMMENTS ON MRTC PROGRESS REPORT

- o NO REASON GIVEN FOR INCREASE IN COST AND LABOR FORECASTS OVER MARCH'S REPORT.

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	95	80	65
INCREMENTAL PROGRESS	10	20	7
COST	2,897,000	3,645,000	1,702,000
MANHOURS	55,900	77,600	37,900
CONTRACT DURATION	13	17	10

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.65 \times 77,600}{37,900} \times 100 = 133\%$$

PRODUCTIVITY IS UP 25 POINTS FROM MARCH.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .65 \times 3,645,000 = \$2,369,250$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 65% COMPLETE, HAS THEORETICALLY EARNED \$2,359,250.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{2,359,250}{1,702,000} = \$ 1.39$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.39 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. UP \$0.20 FROM MARCH.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 1,702,000 - 2,359,250 = \$(657,250)$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$657,250.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A135 UNION STATION  
DESIGN CONTRACTOR - HARRY WEESE & ASSOCIATES (HWA)

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PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \\ \text{(CUMULATIVE)} \end{array} = \frac{\text{ACTUAL COSTS SPENT}}{\text{FORECAST AT COMPLETION}} = \frac{1,702,000}{3,645,000} = 47\%$$

THE CONTRACTOR HAS SPENT 47% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 65%.

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$$\begin{array}{l} \text{EST. AT COMPLETION} = \\ \text{(CALCULATED - EAC)} \end{array} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{3,645,000}{1.39} = \$2,622,302$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,622,302. THIS REPRESENTS A COST UNDERRUN OF \$274,698 OR A 9% DECREASE.

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$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{3,645,000 - 2,359,250}{3,645,000 - 1,702,000} = 66\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 66% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

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CONCLUSION

THE CALCULATIONS CONTINUE TO PROJECT A COST UNDERRUN. PRODUCTIVITY IS WELL OVER 100%, YET THE CONSULTANT IS BEHIND IN PROGRESS. A DESIGN SCHEDULE RECOVERY PLAN HAS BEEN REQUESTED DUE TO PLAN CHANGES AND DELAYS IN AGENCY APPROVALS.

05/31/84  
PC-14.20<5>

### SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A135 Union Station  
DESIGN SUBCONTRACTOR: Harry Weese & Associates  
PROJECT MANAGER (TSD/MRTC): Low/Cooper

AWARD: 07/07/83  
NTP: 07/13/83  
DURATION: 365  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	07/27/83	-	10/05/83	-
IN PROG. SUBMITTAL (60%)	02/01/84	-	03/09/84	-
PRE FINAL SUBMITTAL (85%)	04/01/84	05/31/84	-	-60
FINAL SUBMITTAL (100%)	06/01/84	07/13/84	-	-36
BID DOCUMENTS	07/18/84	08/27/84	-	-40
TIME OF PERFORMANCE	07/12/84	07/13/84	-	- 1

#### RESOLUTIONS OF LAST PERIODS PROBLEMS:

The Section Designer's Monthly Progress Report & Design Control Register have been received from MRTC Program Control. The CPM Network diagram was not received.

#### AREAS OF CONCERN:

The Section Designer needs to work with the Structural Department in developing efficient production to meet the Stage I construction schedule.

The Pre-Final Submittal (85%) for Stage I (Structural Shell) is being forecast for May 31, 1984.

Section Designer needs resolution of east entrance scheme from RTD.

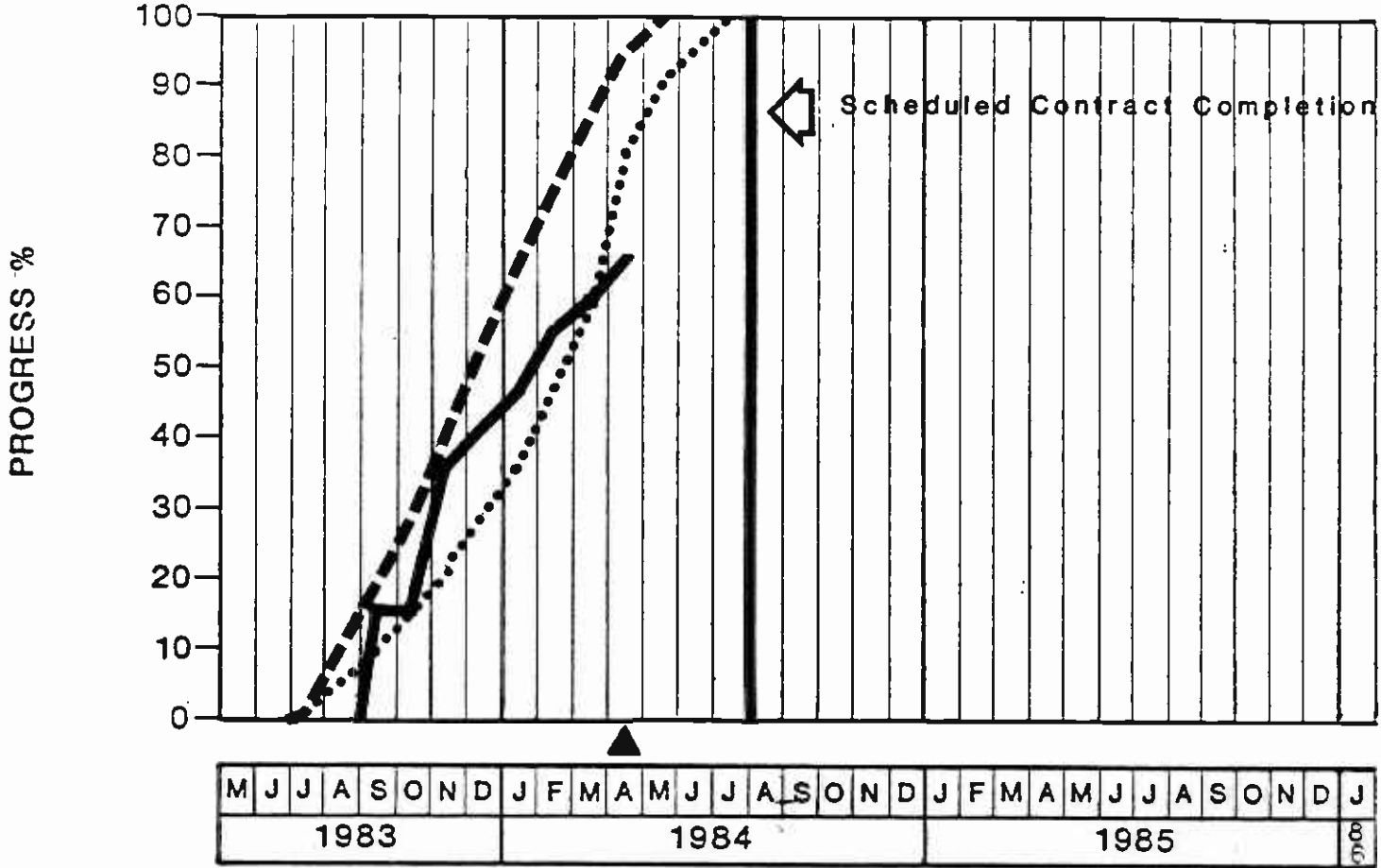
#### COMMENTS:

Design has been split into two construction contracts (Stage I-Structural Shell and Stage II - Finish). The schedule above reflects Stage I schedule and forecast dates at this time.

#### PERFORMANCE ASSESSMENT:

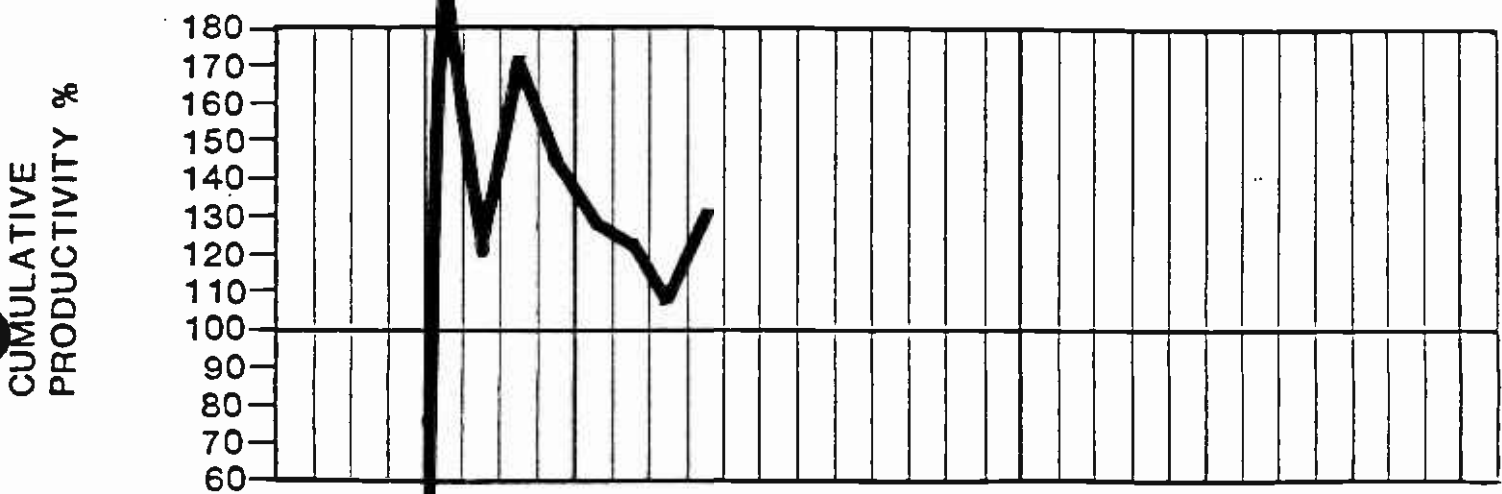
Design progress is currently eight (8) weeks behind schedule. TSD Manager will meet with Section Designer to establish a recovery plan.

MRTC	PLAN	-----
PROGRESS	ACTUAL	-----
REPORT	FORECAST	.....



M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	J	J	A	S	O	N	D	J
1983							1984							1985							J							

MRTC REPORT	PLANNED			2	8	18	29	41	53	64	75	85	95	100																
	ACTUAL			N/A	15	15	35	40	45	55	58	65	65	95																
	FORECAST			0	5	10	15	20	28	35	45	60	80	90	95	100														

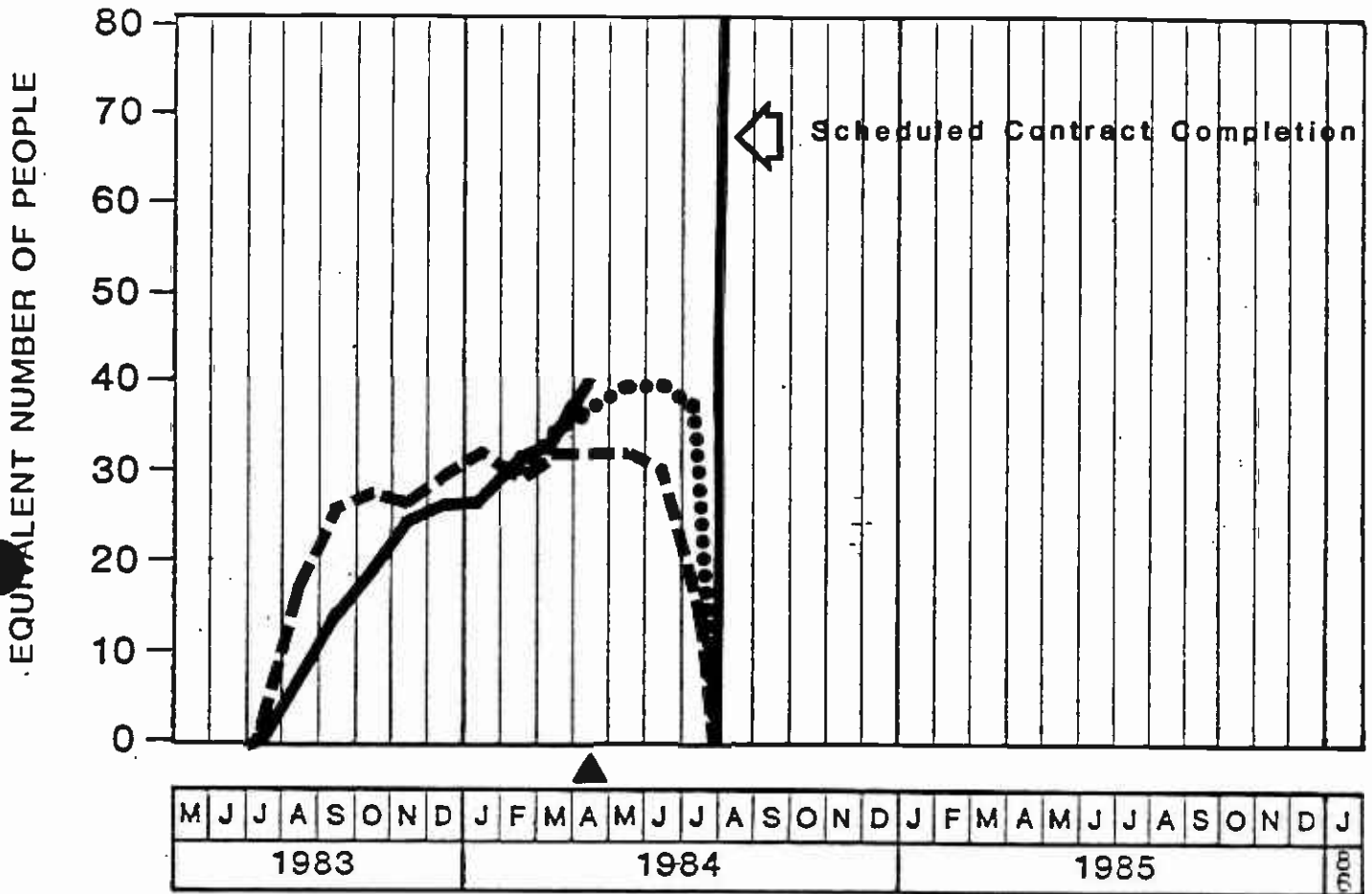


CONTRACT # A135

DESCRIPTION UNION STATION

SECTION DESIGNER HARRY WEESE & ASSOCIATES

### MANPOWER PLAN



PLANNED - - - - -

FORECAST .....

ACTUAL —————

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A140 CIVIC CENTER/5TH & HILL STATIONS + LINE  
DESIGN CONTRACTOR - DELON HAMPTON & ASSOCIATES (DHA)

COMMENTS ON MRTIC PROGRESS REPORT

- o NO REASON GIVEN FOR INCREASE IN COST AND LABOR PLANS AND FORECASTS OVER MARCH'S REPORT.

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	33	30	30
INCREMENTAL PROGRESS	5	5	5.5
COST	6,210,000	6,213,000	1,897,000
MANHOURS	111,200	111,200	37,000
CONTRACT DURATION	25	25	10

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.30 \times 111,200}{37,000} \times 100 = 90\%$$

(CUMULATIVE)

UP 5 POINTS FROM MARCH.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .30 \times 6,213,000 = \$1,863,900$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 30% COMPLETE, HAS THEORETICALLY EARNED \$1,863,900.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{1,863,900}{1,897,000} = \$ .98$$

(CUMULATIVE) -- CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$0.98 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. UP \$0.05 FROM MARCH.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 1,897,000 - 1,863,900 = \$ 33,100$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY OVERRUN BY \$33,100.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A140 CIVIC CENTER/5TH & HILL STATIONS + LINE  
DESIGN CONTRACTOR - DELON HAMPTON & ASSOCIATES (DHA)

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \\ \text{(CUMULATIVE)} \end{array} \frac{\text{ACTUAL COSTS SPENT}}{\text{FORECAST AT COMPLETION}} = \frac{1,897,000}{6,213,000} = 31\%$$

THE CONTRACTOR HAS SPENT 31% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 30%.

$$\begin{array}{l} \text{EST. AT COMPLETION} = \\ \text{(CALCULATED - EAC)} \end{array} \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{6,213,000}{.98} = \$ 6,339,796$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$6,339,796. THIS REPRESENTS A COST OVERRUN OF \$129,796 OR A 2% INCREASE.

$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{6,213,000 - 1,863,900}{6,213,000 - 1,897,000} = 101\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 101% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

CONSULTANT IS CONTINUING TO MAINTAIN PROGRESS, DESPITE PRODUCTIVITY AND COST PERFORMANCE INDEX FIGURES LOWER THAN 100%. THESE FIGURES ARE IMPROVING, HOWEVER, AND ARE NEARLY TO AN ACCEPTABLE LEVEL.



05/31/84  
PC-14.20<6>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: Al40 Line & Stage I Civic Center & 5th/Hill Stations  
DESIGN SUBCONTRACTOR: Delon Hampton & Associates  
PROJECT MANAGER (TSD/MRTC): Louis/Yacoub

AWARD: 07/25/83  
NTP: 07/27/83  
DURATION: 730  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	08/17/83	-	10/26/83	-
IN PROG. SUBMITTAL (60%)	08/01/84	08/01/84	-	0
PRE FINAL SUBMITTAL (85%)	03/01/85	03/01/85	-	0
FINAL SUBMITTAL (100%)	06/10/85	06/10/85	-	0
BID DOCUMENTS	07/15/85	07/15/85	-	0
TIME OF PERFORMANCE	07/27/85	06/10/85	-	+57

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Problems from last period have not been resolved.

AREAS OF CONCERN:

Lack of decision to Cal Plaza Entrance configuration at 4th & Hill Street has impacted all disciplines for the respective 5th/Hill Station Drawings. A decision must be made by June 1984 to avoid delay to the Final Submittal (100%).

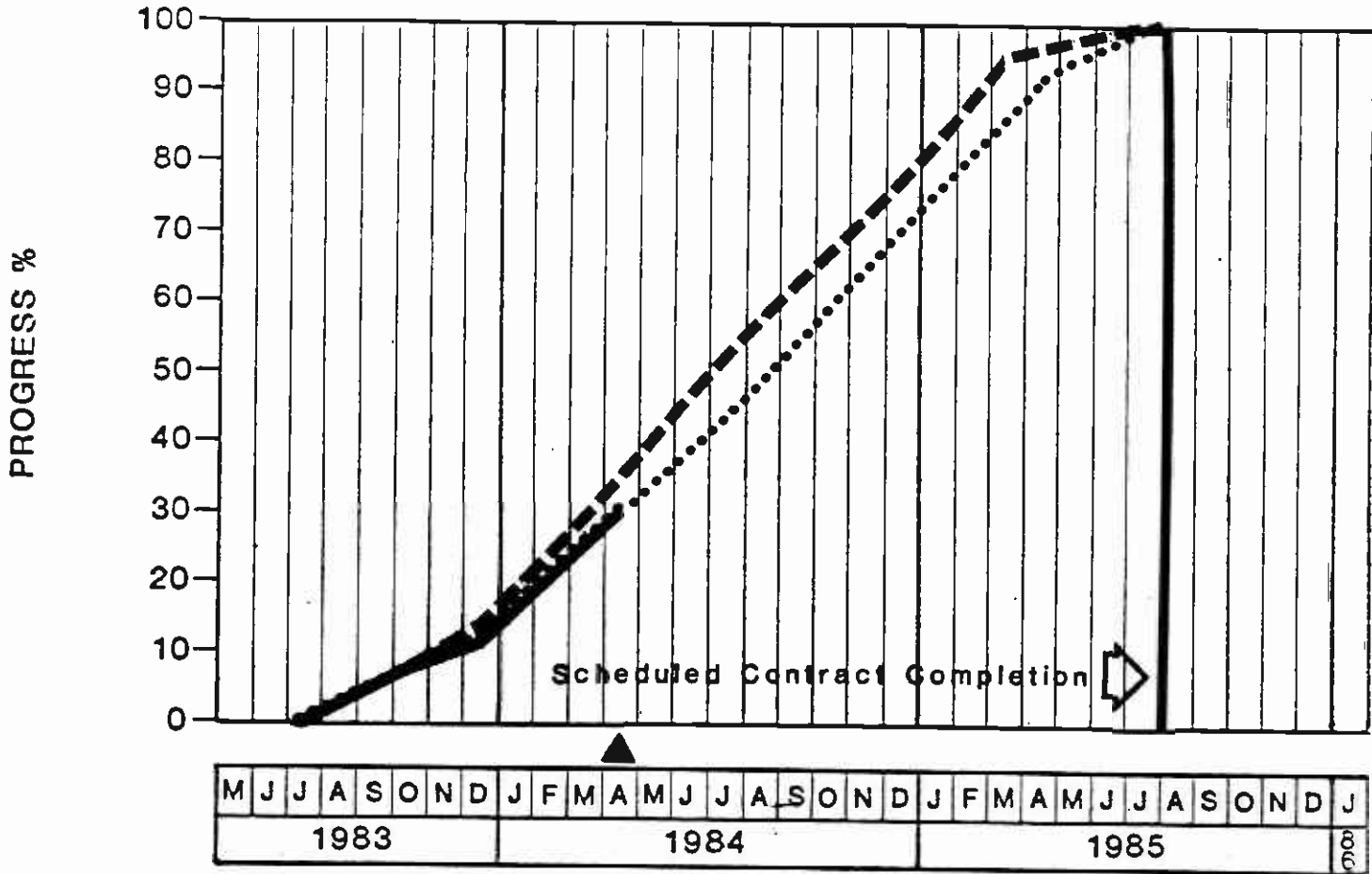
Alternative designs are being considered to resolve the current utility conflicts. Unless the solution requires major design changes (such as alignment change) there is no delay to the In-Progress Submittal (60%).

COMMENTS:

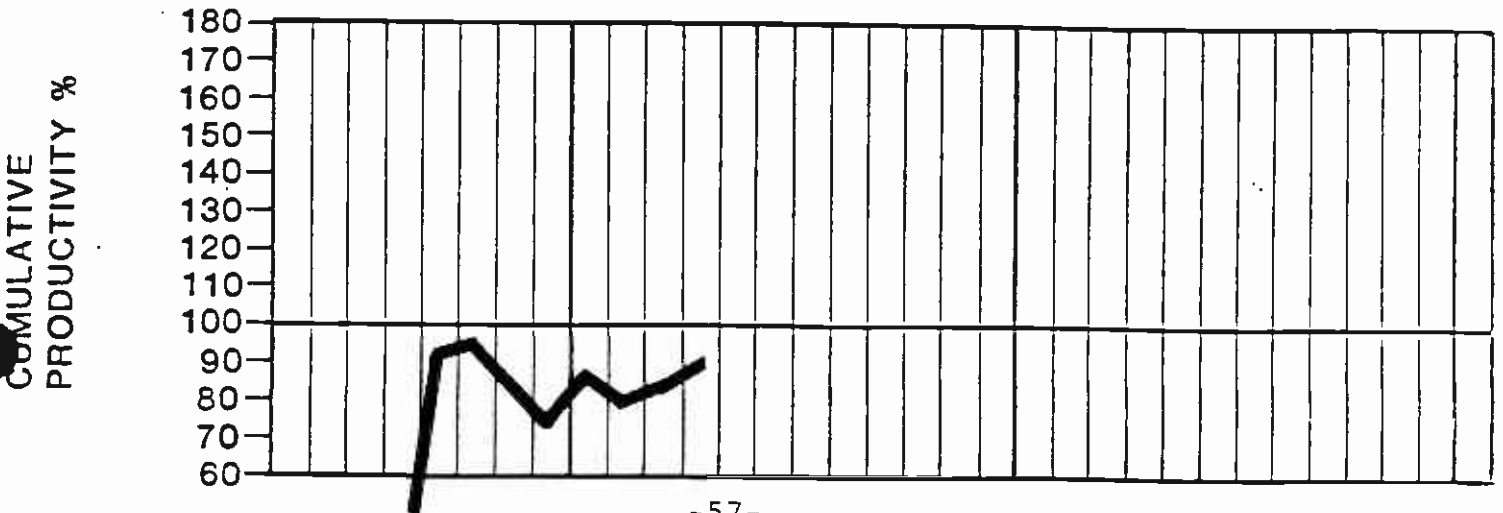
The Section Designer has started work on an early bid package for the Civic Center Station Excavation and Support.

PERFORMANCE ASSESSMENT:

Currently the overall project is approximately eight weeks behind schedule. However, the MRTC Project Manager expects the In-Progress Submittal (60%) to be on time.



MRTC REPORT	PLANNED	0	2.5	4.5	7.5	10	13	17	19	20	20	23	25	24.5	28	30	30	33	35	38	40	44	50	55	61	66	71	76	82	87	91	94	97	99	100
	ACTUAL		N/A	4.5	7.5	9.6	11.5	17	19	20	20	23	25	24.5	28	30	30	33	35	38	40	44	50	55	61	66	71	76	82	87	91	94	97	99	100
	FORECAST	0	2.5	4.5	7.5	10	13	17	19	20	20	23	25	24.5	28	30	30	33	35	38	40	44	50	55	61	66	71	76	82	87	91	94	97	99	100

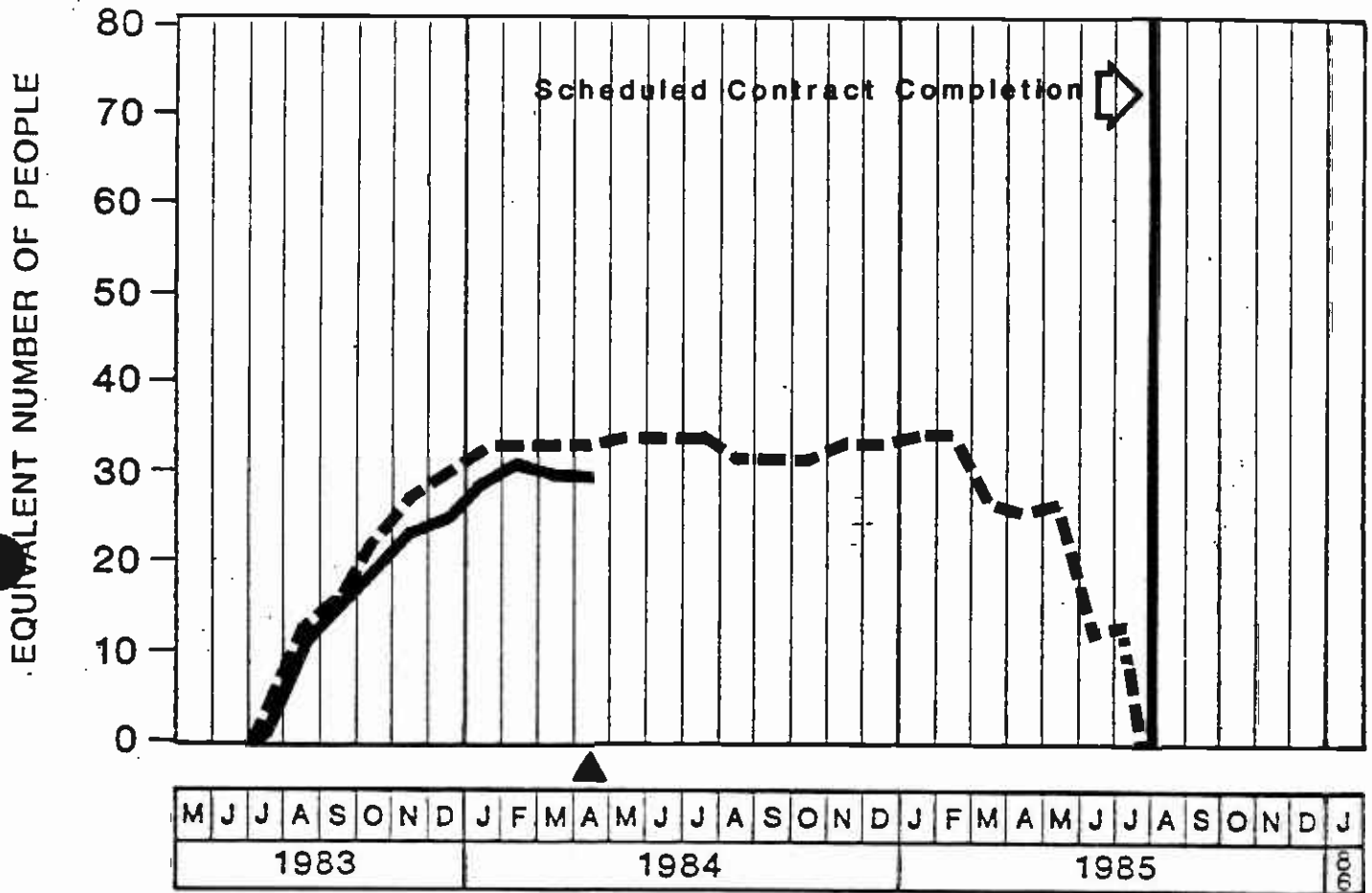


CONTRACT # A140

DESCRIPTION CIVIC CENTER/FIFTH & HILL/LINE

SECTION DESIGNER DELON HAMPTON & ASSOCIATES

### MANPOWER PLAN



PLANNED - - - - -

FORECAST ..... NOT AVAILABLE

ACTUAL \_\_\_\_\_

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A165 7TH/FLOWER STATION  
DESIGN CONTRACTOR - GANNETT FLEMING/DWORSKY

COMMENTS ON MRTIC PROGRESS REPORT

NONE

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	N/A	65	65
INCREMENTAL PROGRESS	N/A	15	11
COST	2,401,000	2,707,000	1,545,000
MANHOURS	64,000	72,300	38,100
CONTRACT DURATION	12	16	9

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \text{TOTAL MH FORECAST} = .65 \times 72,300 = 47,000$$

$$\text{(CUMULATIVE)} \quad \frac{\text{MTRS. SPENT}}{38,100} = \frac{47,000}{38,100} \times 100 = 123\%$$

THE REPORTED PRODUCTIVITY CONTINUES TO BE WELL ABOVE AVERAGE.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .65 \times 2,707,000 = \$1,759,550$$

$$\text{(CUMULATIVE)}$$

THIS CONTRACTOR, BEING AT 65% COMPLETE, HAS THEORETICALLY EARNED \$1,759,550.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{1,759,550}{1,545,000} = \$ 1.14$$

$$\text{(CUMULATIVE) - CPI}$$

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.14 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. THIS IS A VERY FAVORABLE CPI.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 1,545,000 - 1,759,550 = \$ 214,550$$

$$\text{(CUMULATIVE)}$$

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$214,550.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A165 7TH/FLOWER STATION  
DESIGN CONTRACTOR - GANNETT FLEMING/DWORSKY

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \text{ACTUAL COSTS SPENT} \\ \text{(CUMULATIVE)} \quad \underline{\hspace{2cm}} = \frac{1,545,000}{2,707,000} = 57\% \\ \text{FORECAST AT COMPLETION} \end{array}$$

THE CONTRACTOR HAS SPENT 57% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 65%.

$$\begin{array}{l} \text{EST. AT COMPLETION} = \text{FORECAST AT COMPLETION} \\ \text{(CALCULATED - EAC)} \quad \underline{\hspace{2cm}} = \frac{2,707,000}{1.14} = \$2,374,561 \\ \text{COST PERFORMANCE INDEX} \end{array}$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,374,561. THIS REPRESENTS A COST UNDERRUN OF \$26,439 OR A 1% DECREASE.

$$\begin{array}{l} \text{TO COMPLETE} = \text{FORECAST AT COMPLETION} - \text{EARNED COSTS} \\ \text{PERFORMANCE INDEX} \quad \underline{\hspace{2cm}} = \frac{2,707,000 - 1,759,550}{2,707,000 - 1,545,000} \\ \hspace{15cm} = 82\% \end{array}$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 82% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

THIS MONTH THE CONSULTANT ACHIEVED 15% INCREMENTAL PROGRESS WHILE UTILIZING 31% LESS MANPOWER THAN THE PREVIOUS MONTH. THIS TYPE OF PERFORMANCE IS VERY DIFFICULT TO OBTAIN AND IS HIGHLY SUSPECT. THE ADDITIONAL COSTS (\$306,000) SHOWN IN THE FORECAST ARE PRIMARILY FOR THE SPLITTING OF THE CONSTRUCTION CONTRACTS INTO TWO STAGES.

05/31/84  
PC-14.20<7>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: Al65 7th & Flower Station	AWARD: 04/28/83
DESIGN SUBCONTRACTOR: Gannett Fleming/Dworsky	NTP: 08/09/83
PROJECT MANAGER(TSD/MRTC): Low/Cooper	DURATION: 365 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	08/30/83	-	10/17/83	-
IN PROG. SUBMITTAL (60%)	02/07/84	-	03/12/84	-
PRE FINAL SUBMITTAL (85%)	05/22/84	07/02/84	-	-41
FINAL SUBMITTAL (100%)	08/07/84	09/10/84	-	-34
BID DOCUMENTS	10/14/84	10/14/84	-	-
TIME OF PERFORMANCE	08/08/84	09/24/84	-	-47

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Contract design will proceed without LACTC interface. No impact to the design schedule will occur.

The Design Control Register and Design Summary Progress Report were received this period. A Monthly Updated CPM Network Diagram and Monthly Progress Report to this date have not been received.

AREAS OF CONCERN:

Existing telephone duct banks present a problem on the decking at 7th Street. MRTC and Telephone Company are working on arrangement to relocate telephone duct banks or alternative methods to decrease the decking height.

LA DOT recommendation to widen street may cause problems with the location of vents and emergency exits. This issue and others are currently being reviewed by TSD.

COMMENTS:

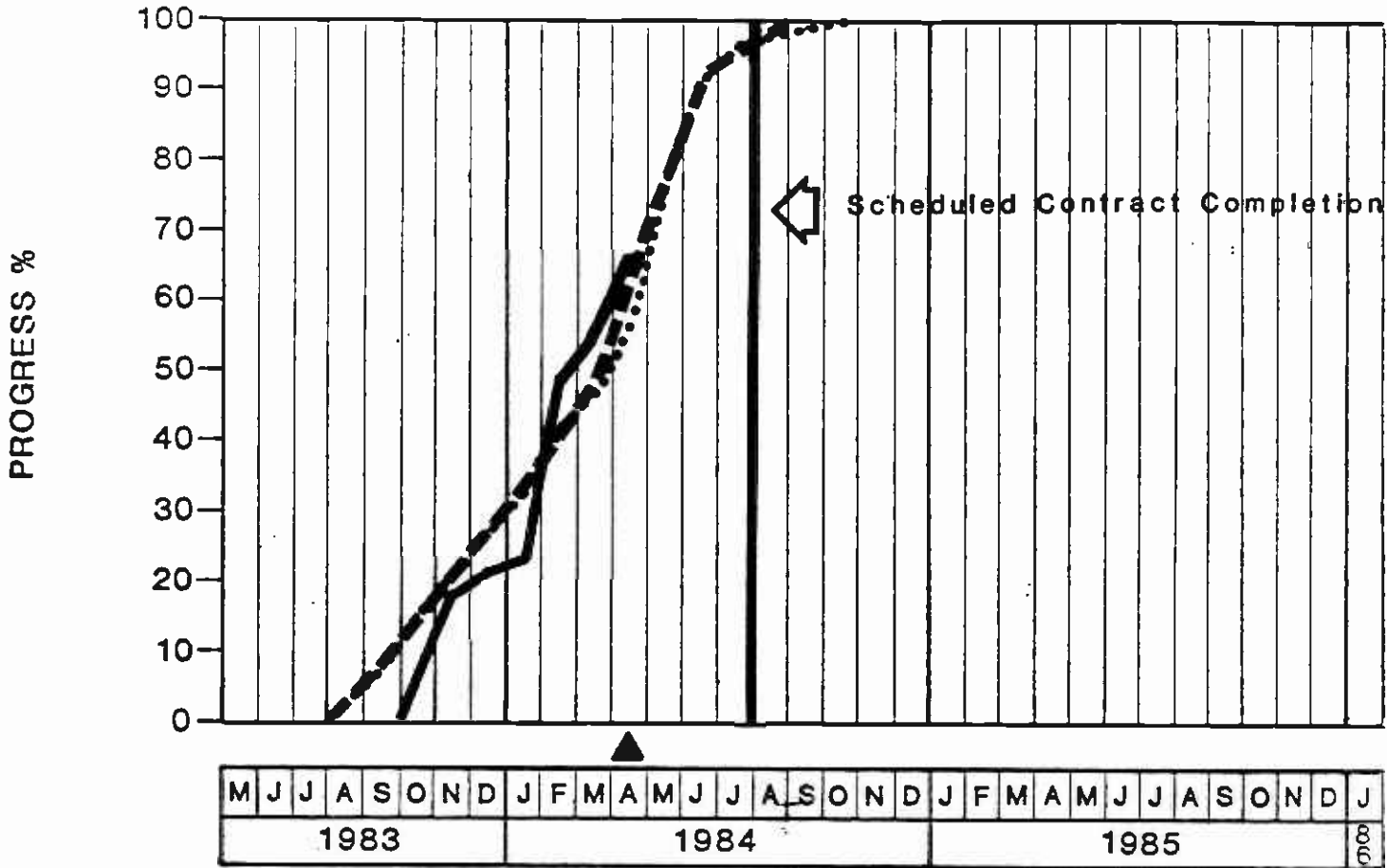
A meeting to discuss utility rearrangement was held and attended by the Section Designer, RTD, MRTC and the utilities companies.

The incorporation of 60% comments and the split in the contract to Stage I & Stage II have contributed to the slip in the contract.

The schedule above reflects Stage I schedule and forecast dates at this time.

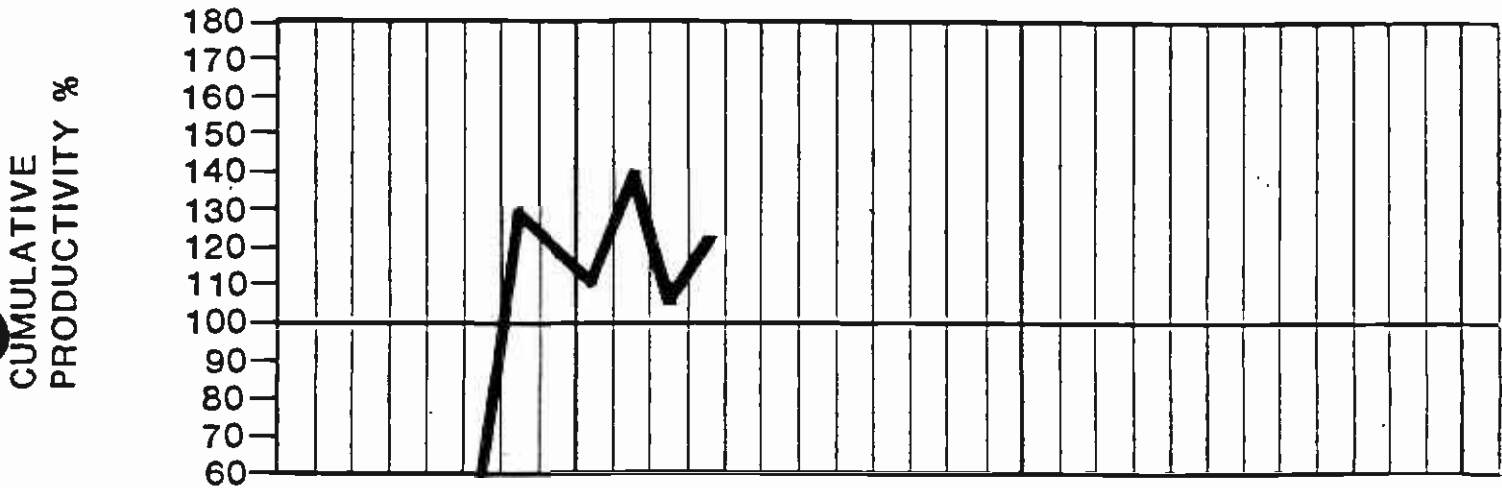
PERFORMANCE ASSESSMENT:

The Section Designer is six (6) weeks behind schedule and is working to meet the new forecast dates.



PROGRESS %

MRTC REPORT	PLANNED				3	8	15	20	27	35	45	50	55	65	80	90	95	100
	ACTUAL						5	20	22	26	50	54	65					
	FORECAST				3	8	15	20	27	35	45	50	55	65	80	90	95	100

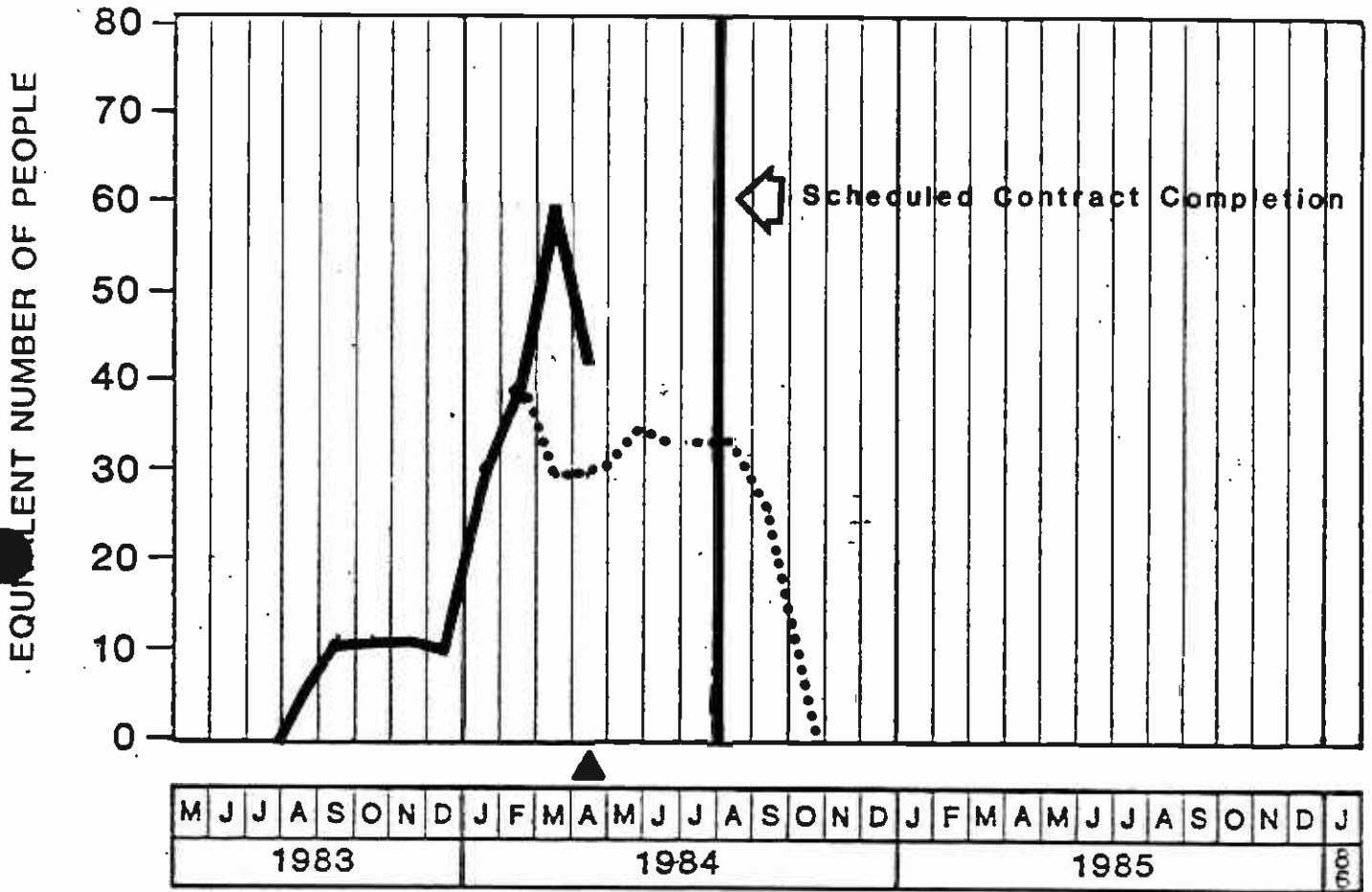


CONTRACT # A165

DESCRIPTION 7TH/FLOWER STATION

SECTION DESIGNER GANNETT FLEMING/DWORSKY

### MANPOWER PLAN



NOT AVAILABLE  
PLANNED  
FORECAST  
ACTUAL



RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A170 WILSHIRE/ALVARADO STATION  
DESIGN CONTRACTOR - SVERDRUP CORPORATION

COMMENTS ON MRTC PROGRESS REPORT

NONE

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	PLAN	FORECAST	ACTUAL TO DATE
% COMPLETE	N/A	55	60
INCREMENTAL PROGRESS	N/A	10	10
COST	3,119,000	3,413,000	1,793,000
MANHOURS	63,400	69,400	35,000
CONTRACT DURATION	17	17	9

$$\text{PRODUCTIVITY} \approx \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MTRS. SPENT}} = \frac{.60 \times 69,400}{35,000} \times 100 = 119\%$$

THE CONSULTANT IS CONSISTENTLY REPORTING EXCELLENT PRODUCTIVITY.

$$\text{EARNED COSTS} \approx \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .60 \times 3,413,000 = \$2,047,800$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 60% COMPLETE, HAS THEORETICALLY EARNED \$2,047,800.

$$\text{COST PERFORMANCE INDEX} \approx \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{2,047,800}{1,793,000} \approx \$1.14$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.14 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. THE CPI, LIKE PRODUCTIVITY, CONTINUES AT A VERY FAVORABLE RATE.

$$\text{COST VARIANCE} \approx \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 1,793,000 - 2,047,800 = \$254,800$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$254,800.



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PC-14.20<8>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A170 Wilshire/Alvarado Station	AWARD: 04/28/83
DESIGN SUBCONTRACTOR: Sverdrup & Parcel Assocs.	NTP: 08/09/83
PROJECT MANAGER(TSD/MRTC): Thakarar/Hodges	DURATION: 485 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	08/23/83	----	09/19/83	----
STAGE I				
IN PROG. SUBMITTAL (60%)	02/14/84	----	02/16/84	----
PRE FINAL SUBMITTAL (85%)	05/30/84	07/13/84	----	-44
FINAL SUBMITTAL (100%)	08/14/84	08/27/84	----	-13
BID DOCUMENTS	09/26/84	09/24/84	----	+ 2
STAGE II				
IN PROG. SUBMITTAL (60%)	04/02/84	05/04/84	----	-32
PRE FINAL SUBMITTAL (85%)	07/25/84	09/03/84	----	-40
FINAL SUBMITTAL (100%)	11/02/84	10/29/84	----	+ 3
BID DOCUMENTS	12/28/84	11/29/84	----	+29
TIME OF PERFORMANCE	12/07/84	10/29/84	----	+39

RESOLUTIONS OF LAST PERIODS PROBLEMS:

The Section Designer is evaluating alternative vertical profile under MacArthur Park Lake and through Wilshire/Alvarado Station. Recommendations are expected by mid-May for TSD evaluation. After these resolutions are defined a schedule recovery plan will be requested.

AREAS OF CONCERN:

The following items may cause potential delay to design:

1. Changes to Standard and Directive Drawings.
2. Standard Specifications not available.
3. Seismic criteria not available.
4. Evaluating the vertical profile.

COMMENTS:

Final Utility Relocation Concept Design was completed by the Section Designer.

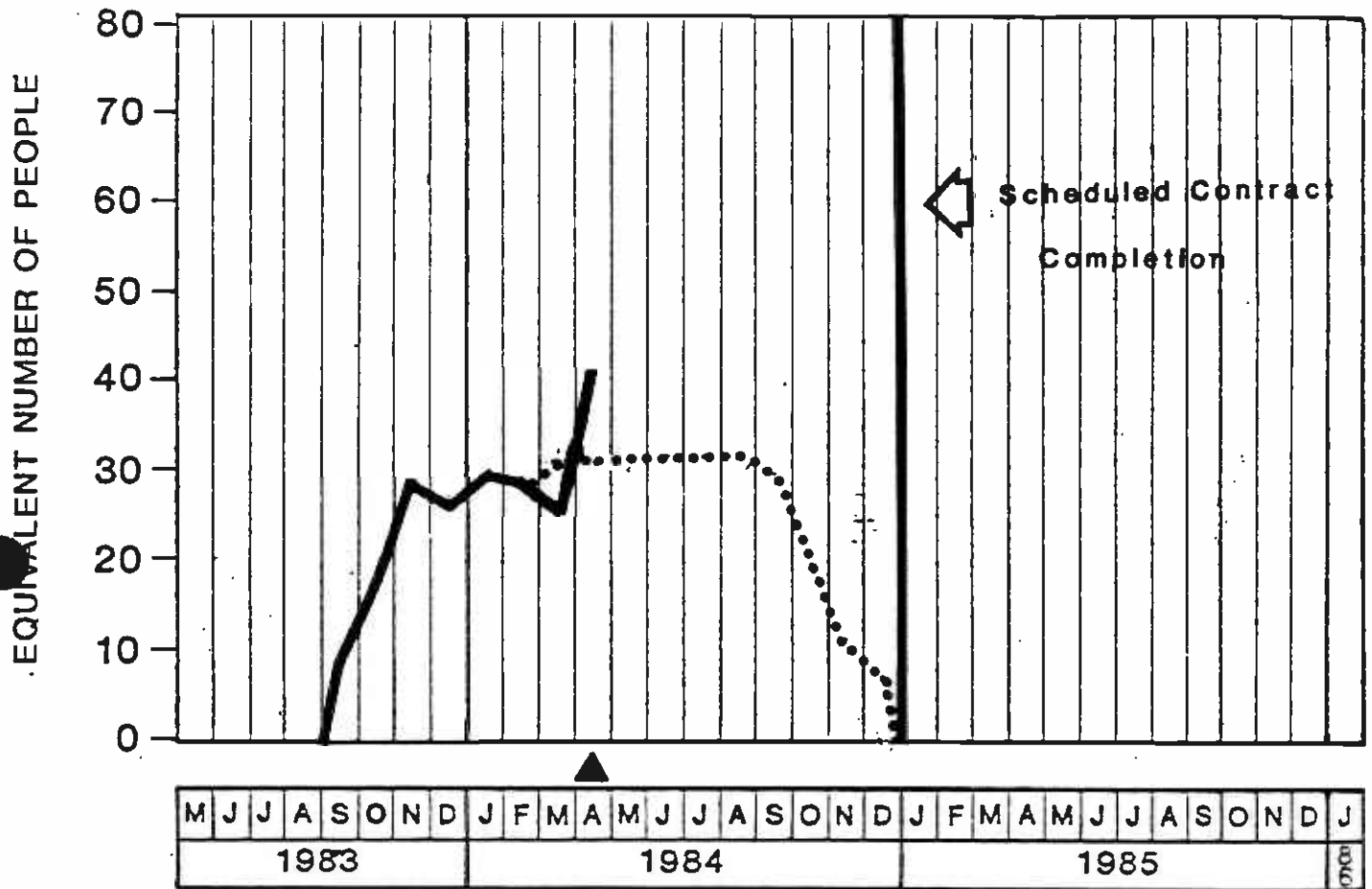
PERFORMANCE ASSESSMENT:


The Pre-Final Submittal (85%) for Line & Station Stage I is forecast to complete 6 weeks beyond the scheduled date of 5/30/84.


Slippage to the In-Progress Submittals is due to continuous changes in design. The Final Submittals (100%) are expected to complete per schedule.




MANPOWER PLAN



PLANNED  NOT AVAILABLE

FORECAST 

ACTUAL 

RFD METRO RAIL PROJECT  
 C.P.E. PHASE  
 SECTION DESIGNER EVALUATION  
 APRIL 1984

COST ANALYSIS

CONTRACT # - A195 WILSHIRE/VERMONT STATION  
 DESIGN CONTRACTOR - KOBER/MAGUIRE

COMMENTS ON MRTC PROGRESS REPORT

- o NO DISCUSSION ON THE 5 MONTH SLIP INDICATED BY THEIR FORECAST.
- o NO DISCUSSION THE CHANGE IN STAGE I FORECAST DATES.
- o NO DISCUSSION ON THE OUTCOME OF MAJOR COORDINATION MEETING OF APRIL 23, 1984 COVERING THE FOLLOWING:
  - oo PROGRESS SCHEDULE
  - oo SPLITTING THE CONTRACTS
  - oo TECHNICAL PROBLEMS

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	72	72	46
INCREMENTAL PROGRESS	10	10	6
COST	1,541,000	2,129,000	1,015,000
MANHOURS	32,000	44,200	22,300
CONTRACT DURATION	13	18	9

$$\text{PRODUCTIVITY} \approx \frac{\% \text{ COMPLETE} \times \text{TOTAL MH FORECAST}}{\text{MRS. SPENT}} = \frac{.46 \times 44,200}{22,300} \times 100 \approx 91\%$$

THOUGH SOMEWHAT LOW, THIS IS A SATISFACTORY PRODUCTIVITY LEVEL.

$$\text{EARNED COSTS} \approx \frac{\% \text{ COMPLETE} \times \text{TOTAL COST FORECAST}}{\text{(CUMULATIVE)}} = .46 \times 2,129,000 \approx \$ 979,340$$

THIS CONTRACTOR, BEING AT 46% COMPLETE, HAS THEORETICALLY EARNED \$979,340.

$$\text{COST PERFORMANCE INDEX} \approx \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{979,340}{1,015,000} \approx \$ .97$$

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$.97 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. THIS IS A REASONABLE CPI.

$$\text{COST VARIANCE} \approx \text{ACTUAL \$ SPENT} - \text{EARNED \$} \approx 1,015,000 - 979,340 \approx \$ 35,660$$

TO DATE, THIS CONTRACT HAS THEORETICALLY OVERRUN BY \$35,660.

COST ANALYSIS  
(CONTINUED)

CONTRACT # -- A195 WILSHIRE/VERMONT STATION  
DESIGN CONTRACTOR -- KOBER/MAGUIRE

PERFORMANCE ASSESSMENT (CONTINUED)

% SPENT =	ACTUAL COSTS SPENT	=	1,015,000	=	
(CUMULATIVE)	-----				48%
	FORECAST AT COMPLETION		2,129,000		

THE CONTRACTOR HAS SPENT 48% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 46%.

EST. AT COMPLETION =	FORECAST AT COMPLETION	=	2,129,000	=	
(CALCULATED - EAC)	-----				\$2,194,845.4
	COST PERFORMANCE INDEX		.97		

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,194,845.4. THIS REPRESENTS A COST OVERRUN OF \$65,845 OR A 3.1% INCREASE WHEN COMPARED TO THE PRESENT FORECAST. WHEN COMPARED TO THE BUDGET OF \$1,541,126, THERE IS A PROJECTED INCREASE OF \$653,719, OR 42%.

TO COMPLETE	=	FORECAST AT COMPLETION - EARNED COSTS	=	2,129,000 - 979,340
PERFORMANCE INDEX		-----		
		FORECAST AT COMPLETION - ACTUAL \$ SPENT		2,129,000 - 1,015,000
				= 103%

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 103% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

THIS CONTRACT IS 12 WEEKS BEHIND SCHEDULE AND IS CURRENTLY UNDERSTAFFED.

THE CONTRACT INDICATES A CUMULATIVE PRODUCTIVITY OF 91%, YET THE CONTRACTOR IS 26% BEHIND IN PROGRESS. THIS CONDITION LEADS TO THE SPECULATION THAT THE REPORTED PROGRESS AND/OR THE COST AND LABOR PLANS ARE NOT ACCURATELY REPRESENTED.

05/31/84  
PC-14.20<9>

### SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A195 Wilshire/Vermont Station	AWARD: 04/28/83
DESIGN SUBCONTRACTOR: Kober/Maguire	NTP: 08/12/83
PROJECT MANAGER(TSD/MRTC): Taylor/Stickel	DURATION: 365 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
STAGE I				
CONTROL SYSTEM SUBMITTAL	08/29/83	-	09/19/83	-
IN PROG. SUBMITTAL (60%)	02/07/84	-	02/10/83	-
PRE FINAL SUBMITTAL (85%)	05/22/84	06/06/84	-	-15
FINAL SUBMITTAL (100%)	08/07/84	08/31/84	-	-24
BID DOCUMENTS	09/19/84	10/12/84	-	-23
STAGE II				
PRE-FINAL SUBMITTAL (85%)	05/22/84	09/26/84	-	-127
FINAL SUBMITTAL (100%)	09/21/84	11/20/84	-	- 60
BID DOCUMENTS	11/19/84	01/01/85	-	- 43
TIME OF PERFORMANCE	08/11/84	11/20/84	-	-101

#### RESOLUTIONS OF LAST PERIODS PROBLEMS:

The Section Designer and MRTC held a major coordination meeting (4/23/84) to discuss the progress schedule, splitting the contract (Stage I and Stage II) and technical problems. The forecast dates as shown above reflect a proposed recovery plan by the Section Designer.

#### AREAS OF CONCERN:

The proposed recovery plan will require the following corrective actions:

1. No more changes to the Standard and Directive Drawings.
2. An on-board review at the Section Designer's office.
3. City approval of final utility concept plan by 5/15/84.
4. MRTC directions regarding resolutions to current design changes.
5. Immediate direction for seismic design.
6. Issue signing and graphic details and Art Program layout.
7. Overtime usage and additional design personnel.

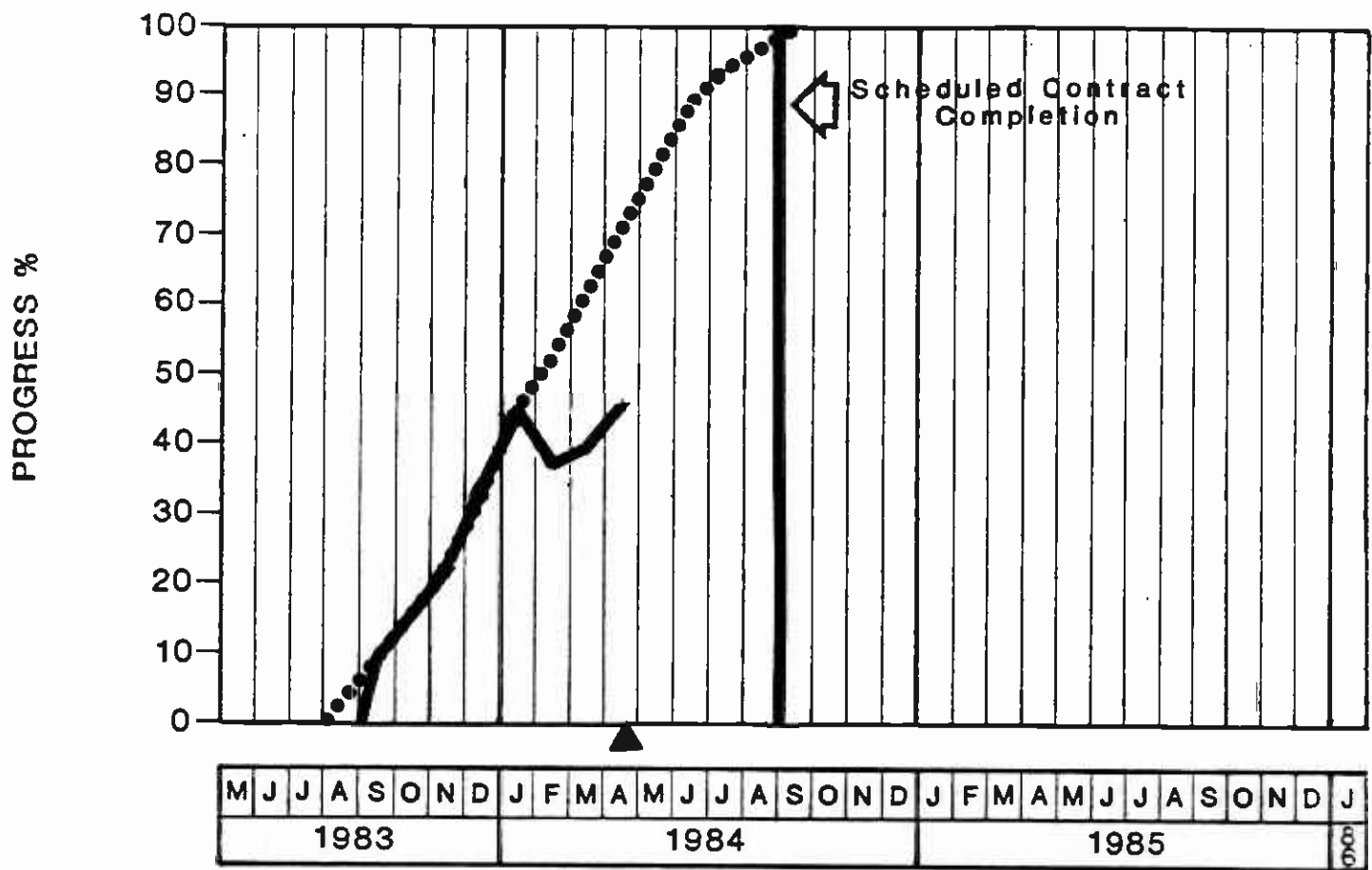
#### COMMENTS:

The TSD and MRTC Project Managers will be visiting the Section Designer's office May 8, 1984, to review progress of drawings. Final agreement and modification to the Contract Time of Performance to include the Stage II Final Submittal (100%) should be forthcoming.

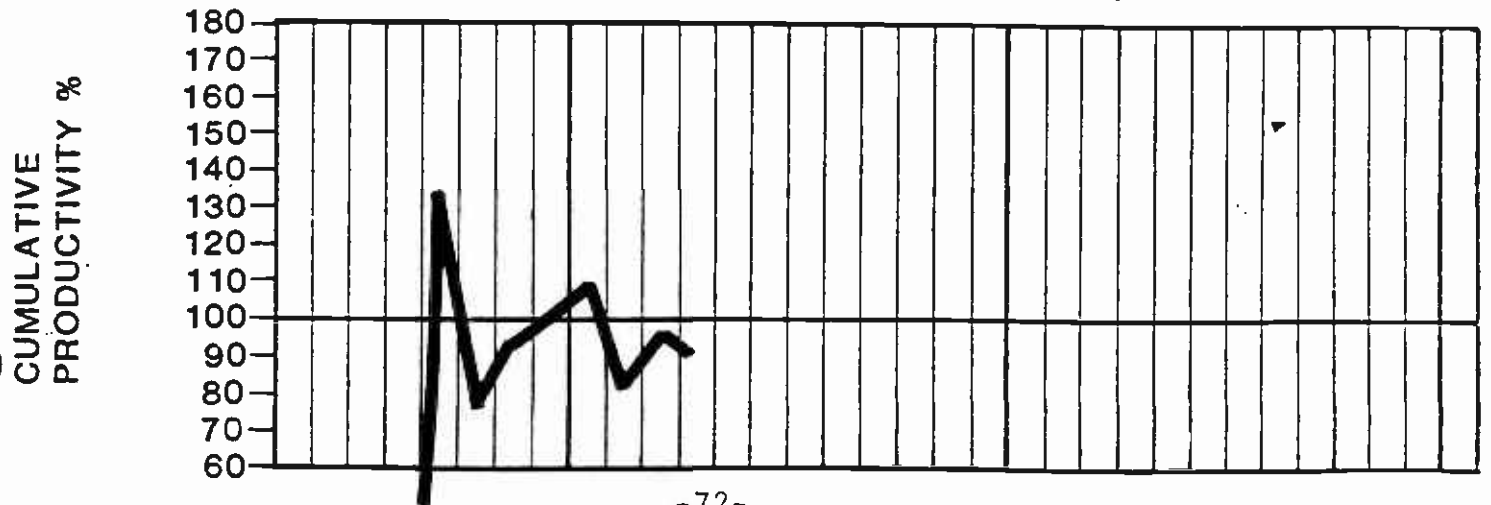
#### PERFORMANCE ASSESSMENT:

The Section Designer's CPM schedule update for April 1984 indicates that current progress is 27 weeks behind schedule. The recovery plan indicates that contract completion is forecast 14 weeks beyond Contract Time of Performance.





BI-WEEKLY REPORT	PLANNED					19	19	27	35	45	55																		
	ACTUAL					19	22	27	30	45	38	55																	
MRTC REPORT	PLANNED	NOT AVAILABLE																											
	ACTUAL					8	10	22	33	45	38	40	46	80	90	95	98	100											
	FORECAST	3	8	15	22	33	45	52	62	72	80	90	95	98	100														

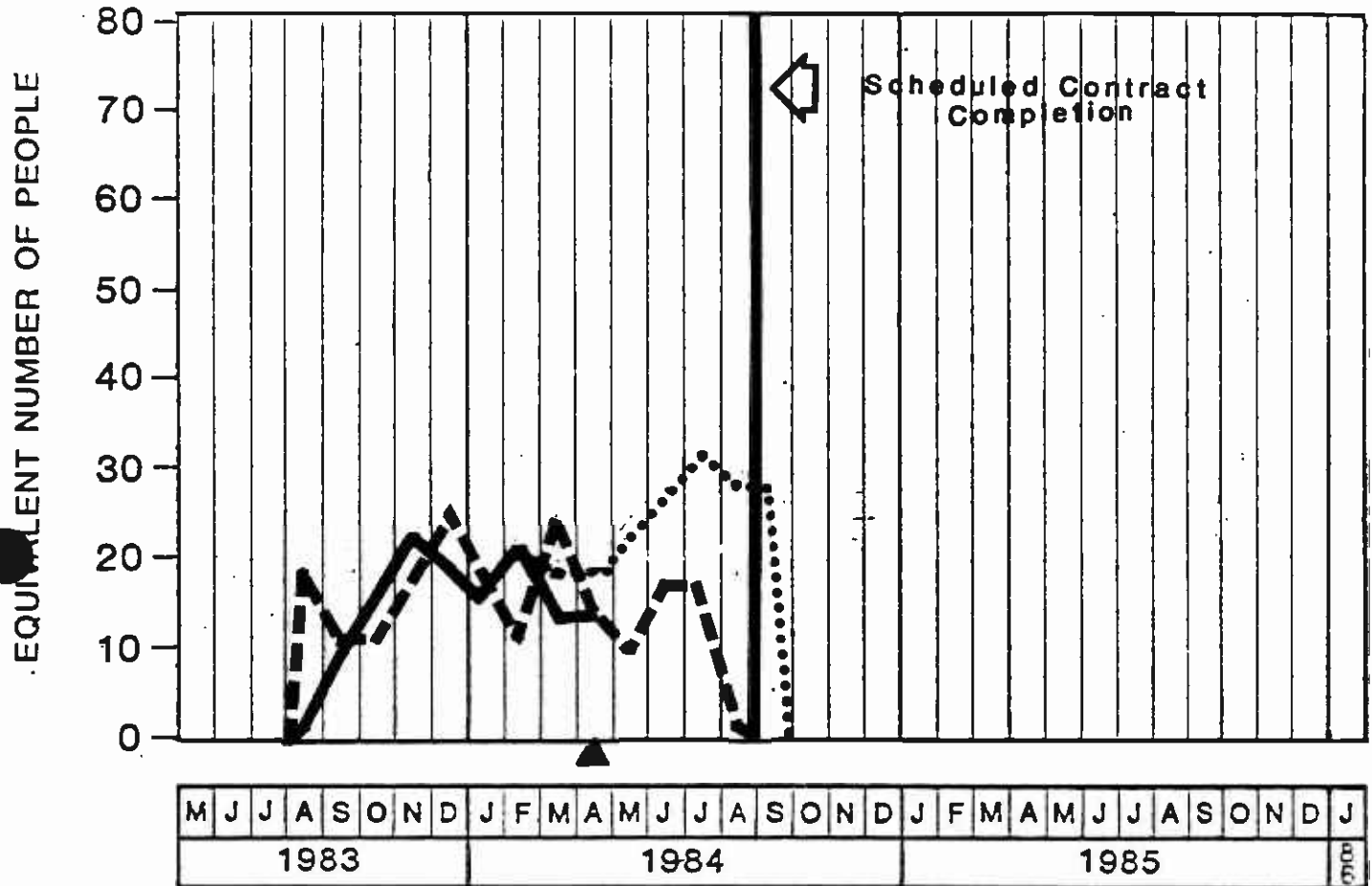


CONTRACT # A195

DESCRIPTION WILSHIRE/VERMONT STATION

SECTION DESIGNER KOBER/MAGUIRE

### MANPOWER PLAN



PLANNED 

FORECAST 

ACTUAL 

RTD METRO RAIL PROJECT  
 C.P.E. PHASE  
 SECTION DESIGNER EVALUATION  
 APRIL 1984

COST ANALYSIS

CONTRACT # - A220 WILSHIRE/NORMANDIE AND WILSHIRE/WESTERN STATIONS  
 DESIGN CONTRACTOR - TUDOR/PEREIRA

COMMENTS ON MRTC PROGRESS REPORT

- o INCONSISTENCIES ARE APPARENT IN THE PERCENT COMPLETE REPORTED IN THE MRTC MONTHLY PROGRESS REPORT AND THE MRTC DESIGN STATUS REPORT.
- o CONTRACTOR COMPLETED 11% PROGRESS IN ONE MONTH -- THIS FIGURE IS SUSPECT.

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	N/A	17	23
INCREMENTAL PROGRESS	N/A	4	11
COST	4,677,000	4,828,000	762,000
MANHOURS	79,000	81,500	12,300
CONTRACT DURATION	25	22	7

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.23 \times 81,500}{12,300} \times 100 = 152\%$$

(CUMULATIVE)

AN OUTSTANDING PRODUCTIVITY FACTOR.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .23 \times 4,828,000 = \$1,110,440$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 23% COMPLETE, HAS THEORETICALLY EARNED \$1,110,440.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{1,110,440}{762,000} = \$ 1.46$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.46 WORTH OF WORK FOR EVERY DOLLAR WE SPEND.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 762,000 - 1,110,440 = \$ 348,440$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$348,440.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A220 WILSHIRE/NORMANDIE AND WILSHIRE WESTERN STATIONS  
DESIGN CONTRACTOR - TUDOR/PEREIRA

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \frac{\text{ACTUAL COSTS SPENT}}{\text{FORECAST AT COMPLETION}} = \frac{762,000}{4,828,000} = 16\% \\ \text{(CUMULATIVE)} \end{array}$$

THE CONTRACTOR HAS SPENT 16% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 23%.

$$\begin{array}{l} \text{EST. AT COMPLETION (CALCULATED - EAC)} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{4,828,000}{1.46} = \$3,306,849 \end{array}$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$3,306,849. THIS REPRESENTS A COST UNDERRUN OF \$1,370,151 OR A 29% DECREASE.

$$\begin{array}{l} \text{TO COMPLETE PERFORMANCE INDEX} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{4,828,000 - 1,110,440}{4,828,000 - 762,000} = 91\% \end{array}$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 91% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST. BASED ON CONTRACTOR'S PREVIOUS PERFORMANCE, THIS PRODUCTIVITY FACTOR SHOULD BE EASILY ATTAINED.

CONCLUSION

AS REPORTED IN THE ABOVE DATA, THIS CONTRACTOR IS DOING EXCEPTIONALLY WELL.

THE CONTRACTOR IS REPORTING ACTUAL PROGRESS BEING MUCH HIGHER THAN PLANNED, AND THEY ARE USING LESS MONEY AND MANPOWER THAN PROJECTED TO ATTAIN THIS PROGRESS. THIS COULD MEAN THAT THE ORIGINAL BASE-LINE WAS UNREALISTIC.

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A220-Line Section & Stage I  
at Normandie & Western

AWARD: 10/10/83

DESIGN SUBCONTRACTOR: Tudor/Pereira  
PROJECT MANAGER (TSD/MRTC): Bilco/Bejau

NTP: 10/10/83  
DURATION: 730  
(CALENDAR DAYS)

<u>TUNNEL</u> MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	10/24/83	-	10/24/83	-
IN PROG. SUBMITTAL (60%)	03/12/84	05/29/84	-	-79
PRE FINAL SUBMITTAL (85%)	04/30/84	07/16/84	-	-78
FINAL SUBMITTAL (100%)	06/11/84	09/17/84	-	-99
BID DOCUMENTS	06/03/85	06/03/85	-	-
TIME OF PERFORMANCE	07/01/85	07/01/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

- . The mid-tunnel vent shaft location has been received by the Section Designer.
- . Foundation conditions have been established for one of the existing buildings over the tunnel.

AREAS OF CONCERN:

- . The information regarding the foundation condition of one existing building between Vermont and Normandie has not been determined. Borings will need to be made to determine foundation conditions.
- . The widening of Wilshire Boulevard (to 80 ft.) planned by the City of Los Angeles, will have an impact on the Western Station appendages layout. Section Designer is continuing the design of appendages.
- . The configuration study for the mid-tunnel vent shaft was issued by MRTC. The study did not comply with functional requirement. The study will determine if the mid-tunnel vent shaft is actually needed, now that the Crenshaw Station has been added to the line.

COMMENTS:

- . In-Progress Submittal (60%) of the Tunnel is forecast for May 29, 1984.
- . The Section Designer's Monthly Update did not include the CPM Network & the Design Control Register.
- . Inconsistencies on the percent complete reported this period appeared on the MRTC Progress Report (April 1984) & the MRTC Design Status Report (May 11, 1984).

PERFORMANCE ASSESSMENT:

The Section Designer is behind schedule. The Tunnel portion is eleven weeks behind schedule while the two stations are proceeding as scheduled.

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SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

Page 2 of 3

DESIGN CONTRACT: A220--Line Section & Stage I  
at Normandie & Western

AWARD: 10/10/83

DESIGN SUBCONTRACTOR: Tudor/Pereira  
PROJECT MANAGER(TSD/MRTC): Bilco/Bejau

NTP: 10/10/83  
DURATION: 730  
(CALENDAR DAYS)

<u>WILSHIRE/WESTERN</u> MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	-	-	-	-
IN PROG. SUBMITTAL (60%)	08/06/84	08/06/84	-	-
PRE FINAL SUBMITTAL (85%)	11/05/84	11/05/84	-	-
FINAL SUBMITTAL (100%)	02/04/85	02/04/85	-	-
BID DOCUMENTS	-	-	-	-
TIME OF PERFORMANCE	-	-	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

AREAS OF CONCERN:

See Comments on Page One (Tunnel Section) of Contract A220

COMMENTS:

PERFORMANCE ASSESSMENT:

05/31/84  
PC-14.20<12>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

Page 3 of 3

DESIGN CONTRACT: A220-Line Section & Stage I  
at Normandie & Western

AWARD: 10/10/83

DESIGN SUBCONTRACTOR: Tudor/Pereira  
PROJECT MANAGER (TSD/MRTC): Bilco/Bejau

NTP: 10/10/83  
DURATION: 730  
(CALENDAR DAYS)

<u>WILSHIRE/NORMANDIE</u> MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	-	-	-	-
IN PROG. SUBMITTAL (60%)	12/03/84	12/03/84	-	-
PRE FINAL SUBMITTAL (85%)	03/04/85	03/04/85	-	-
FINAL SUBMITTAL (100%)	06/03/85	06/03/85	-	-
BID DOCUMENTS	-	-	-	-
TIME OF PERFORMANCE	-	-	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

AREAS OF CONCERN:

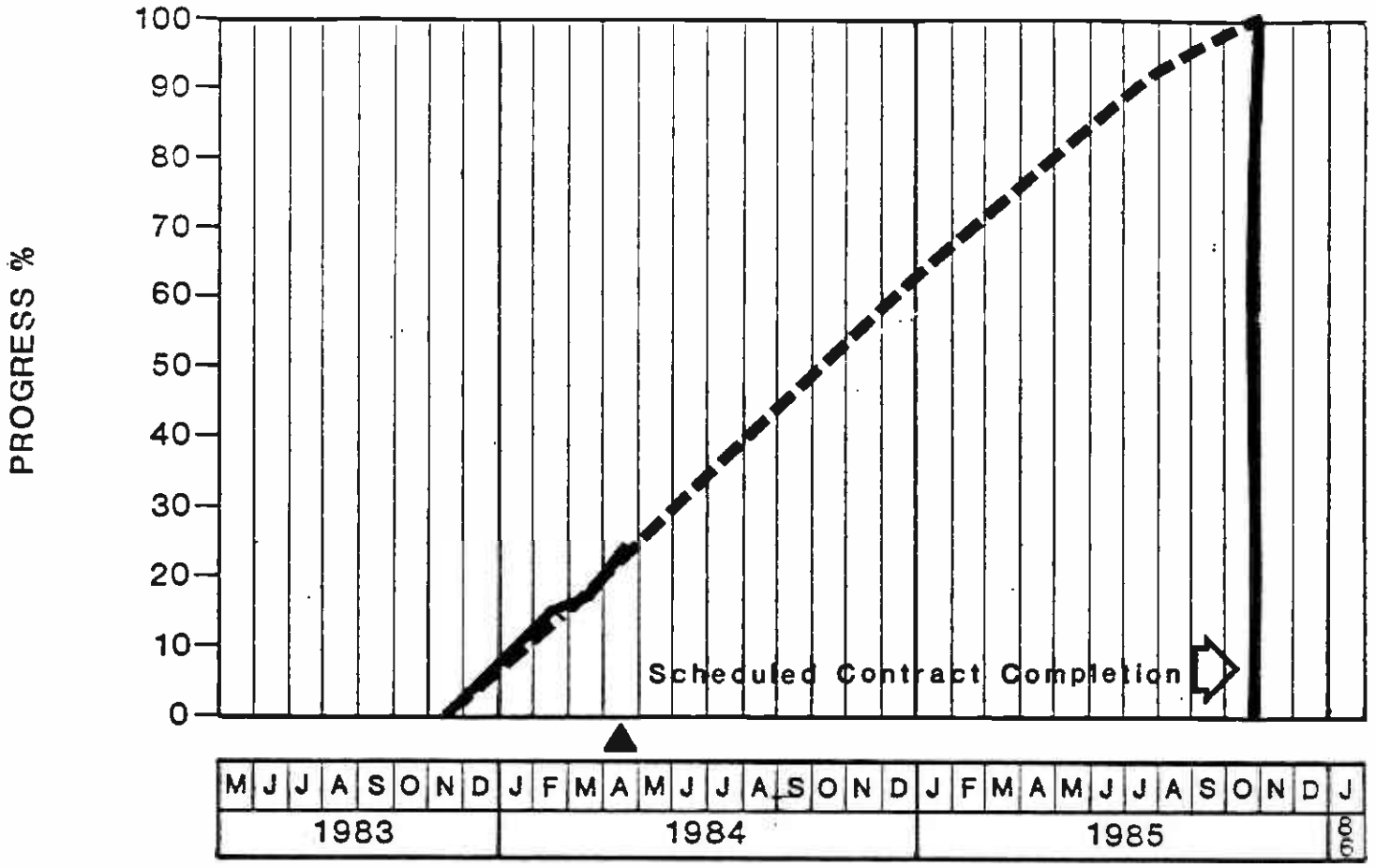
See Comments on Page One (Tunnel Section) of Contract A220

COMMENTS:

PERFORMANCE ASSESSMENT:

CONTRACT # A220  
 DESCRIPTION Wilshire/Western and Wilshire/Normandie  
 SECTION DESIGNER Tudor/Pereira

MRTC PROGRESS REPORT	PLAN ACTUAL FORECAST

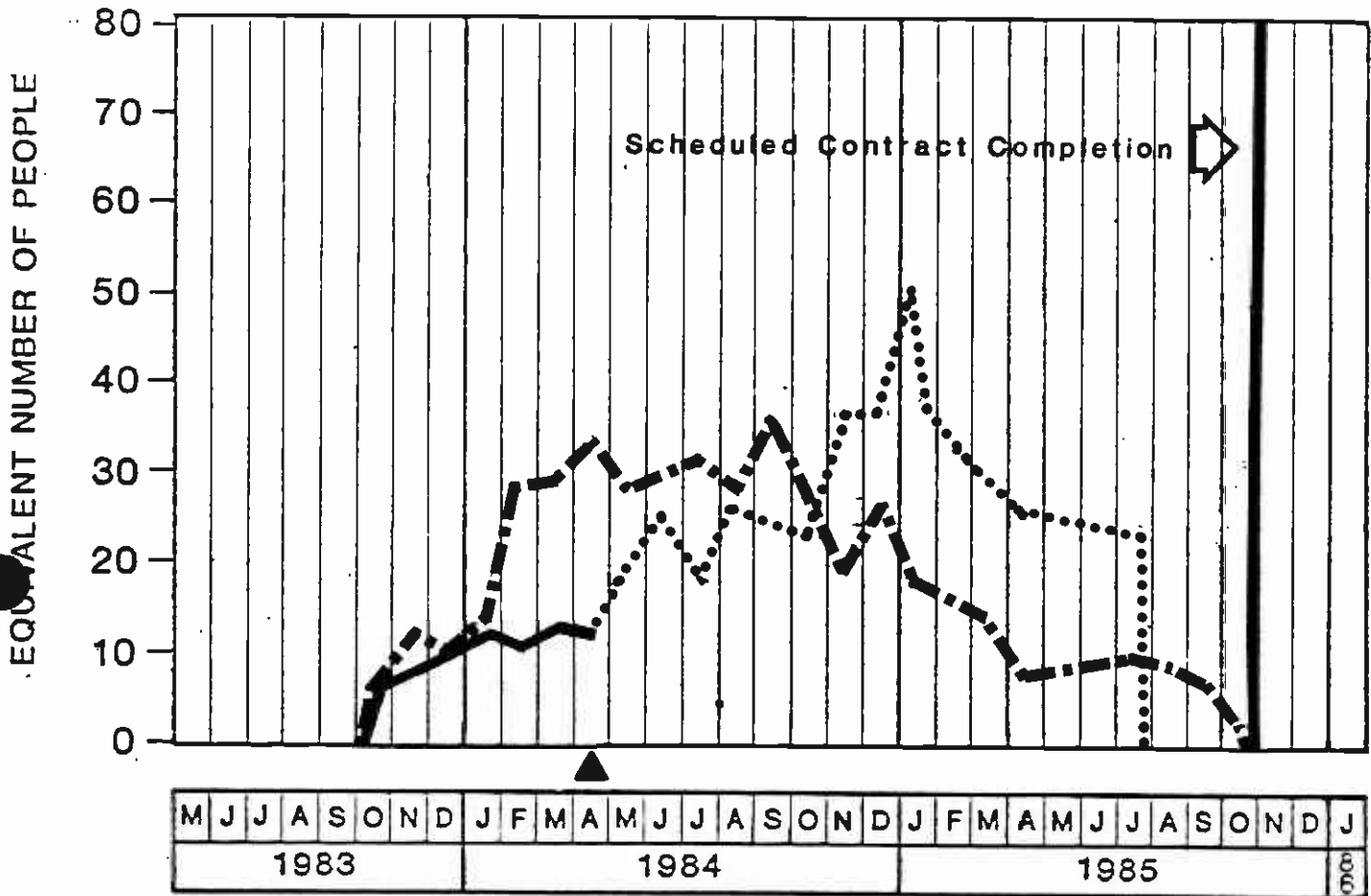


MRTC REPORT	PLANNED												ACTUAL												FORECAST											
	1	5	7	10	12	13	17	22	26	30	35	40	47	54	60	65	70	77	82	85	90	93	96	98	100											





MANPOWER PLAN



PLANNED - - - - -  
 FORECAST .....  
 ACTUAL ———

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A240 WILSHIRE/CRENSHAW STATION  
DESIGN CONTRACTOR -- TURNER/CHANG

---

COMMENTS ON MRTIC PROGRESS REPORT

- o NO DISCUSSION ON THE 3 MONTH SLIPPAGE INDICATED BY THEIR FORECAST.

---

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	15	15	18
INCREMENTAL PROGRESS	5	5	10
COST	2,395,000	2,610,000	377,000
MANHOURS	44,600	49,100	5,400
CONTRACT DURATION	12	15	3

---

$$\begin{aligned} \text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \text{TOTAL MH FORECAST} &= .18 \times 49,100 \\ \text{(CUMULATIVE)} \quad \frac{\text{MTRS. SPENT}}{\text{MTRS. SPENT}} &= \frac{5,400}{5,400} \times 100 = 164\% \end{aligned}$$

---

$$\begin{aligned} \text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} &= .18 \times 2,610,000 = \$ 469,800 \\ \text{(CUMULATIVE)} \end{aligned}$$

THIS CONTRACTOR, BEING AT 18% COMPLETE, HAS THEORETICALLY EARNED \$469,800.

---

$$\begin{aligned} \text{COST PERFORMANCE INDEX} = \text{EARNED COSTS} &= \frac{469,800}{377,000} = \$ 1.25 \\ \text{(CUMULATIVE)} \text{ -- CPI} \quad \frac{\text{ACTUAL COSTS SPENT}}{\text{ACTUAL COSTS SPENT}} \end{aligned}$$

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.25 WORTH OF WORK FOR EVERY DOLLAR WE SPEND.

---

$$\begin{aligned} \text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} &= 377,000 - 469,800 = \$ (92,800) \\ \text{(CUMULATIVE)} \end{aligned}$$

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$ 92,800.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A240 WILSHIRE/CRENSHAW STATION  
DESIGN CONTRACTOR - TURNER/CHANG

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \frac{\text{ACTUAL COSTS SPENT}}{\text{FORECAST AT COMPLETION}} = \frac{377,000}{2,610,000} = 14.4 \% \\ \text{(CUMULATIVE)} \end{array}$$

THE CONTRACTOR HAS SPENT 14.4% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 18%.

$$\begin{array}{l} \text{EST. AT COMPLETION} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{2,610,000}{1.25} = \$2,088,000 \\ \text{(CALCULATED - EAC)} \end{array}$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,088,000. THIS REPRESENTS A COST UNDERRUN OF \$522,000 OR A 20% DECREASE WHEN COMPARED TO PRESENT FORECAST, BUT WHEN COMPARED TO THE ORIGINAL PLAN OF \$2,395,000, AGAIN IT WILL UNDERRUN BY \$307,000, OR 13%.

$$\begin{array}{l} \text{TO COMPLETE} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{2,610,000 - 469,800}{2,610,000 - 377,000} \\ \text{PERFORMANCE INDEX} \end{array} = 96\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 96% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

IT IS STILL TOO EARLY TO DRAW ANY FIRM CONCLUSIONS ABOUT THE CONSULTANT'S PERFORMANCE. ALL RATIOS INDICATE FAVORABLE PROGRESS. WORK IS PROGRESSING ON A SATISFACTORY BASIS, BUT NOTE THAT THE SCHEDULE HAS ALREADY SLIPPED BY 3 MONTHS, AND A COST OVERRUN HAS BEEN FORECAST.

05/31/84  
PC-14.20<13>

## SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A240 Wilshire/Crenshaw Station	AWARD: 01/18/84
DESIGN SUBCONTRACTOR: Turner/Chang	NTP: 01/27/84
PROJECT MANAGER(TSD/MRTC): Bilco/Tallett	DURATION: 366 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	02/16/84	-	03/12/84	-
IN PROG. SUBMITTAL (60%)	07/16/84	07/16/84	-	-
PRE FINAL SUBMITTAL (85%)	10/22/84	10/22/84	-	-
FINAL SUBMITTAL (100%)	01/14/85	01/14/85	-	-
BID DOCUMENTS	02/14/85	02/14/85	-	-
TIME OF PERFORMANCE	01/26/85	01/26/85	-	-

### RESOLUTIONS OF LAST PERIODS PROBLEMS:

The Section Designer has received the location of the exit and is proceeding with the station design.

### AREAS OF CONCERN:

The operational aspects of the station and the future development of the site have not been finalized.

### COMMENTS:

Comments made on the initial submittal have not been incorporated into the Section Designer's Schedule.

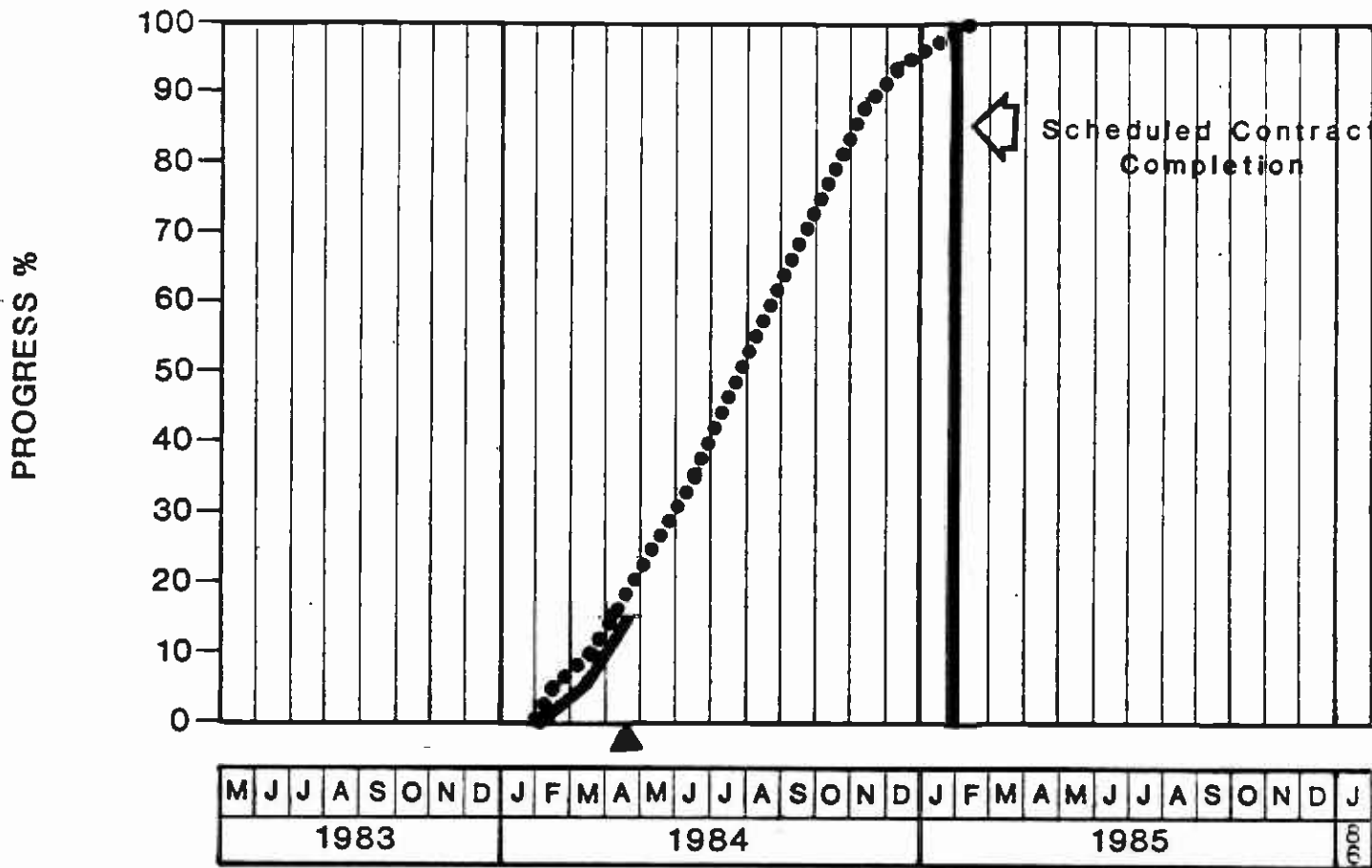
Section Designer was directed to split the contract into Stage I (Shell) and Stage II (Finish).

The Monthly Progress reported this period per the MRTC Progress Report (April 1984) and the MRTC Design Status Report (May 11, 1984) were inconsistent and did not correspond with the Section Designer's Report.

### PERFORMANCE ASSESSMENT:

The Section Designer is on schedule. The site development at this time is not affecting progress.

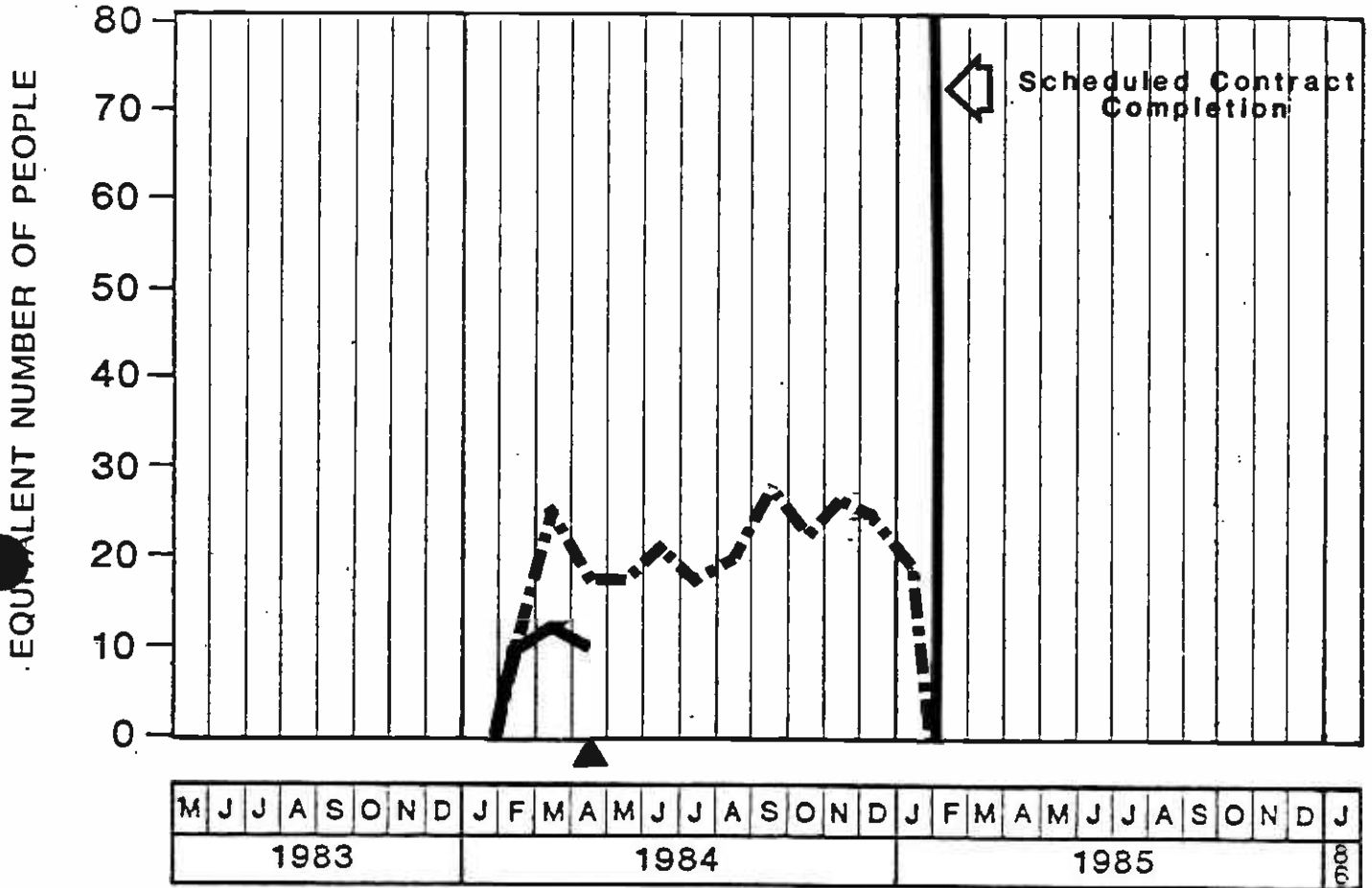
MRTC	PLAN	---
PROGRESS	ACTUAL	—
REPORT	FORECAST	.....



PROGRESS %	BI-WEEKLY REPORT	PLANNED																							
		ACTUAL							1	1															
	MRTC REPORT	PLANNED	NOT AVAILABLE																						
		ACTUAL							1	8	18														
	FORECAST						5	10	15	25	35	45	57	68	80	90	95	98	100						

CUMULATIVE PRODUCTIVITY %																								
	NOT AVAILABLE																							

MANPOWER PLAN



PLANNED - - - - -

FORECAST .....

ACTUAL —————

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A245 WILSHIRE/LABREA STATION  
DESIGN CONTRACTOR - STV ENGINEERS/LYON ASSOCIATES

---

COMMENTS ON MRTIC PROGRESS REPORT

- o NO REASON GIVEN FOR INCREASE IN COST AND LABOR FORECASTS OVER THE PREVIOUS MONTH'S REPORT.

---

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	50	50	46
INCREMENTAL PROGRESS	10	10	13.5
COST	1,609,000	1,873,000	557,000
MANHOURS	32,200	37,500	11,400
CONTRACT DURATION	13	16	7

---

$$\begin{aligned} \text{PRODUCTIVITY} &= \% \text{ COMPLETE} \times \text{TOTAL MH FORECAST} \\ \text{(CUMULATIVE)} &= \frac{50}{100} \times 37,500 = 18,750 \\ &= \frac{11,400}{18,750} \times 100 = 60.8\% \end{aligned}$$

CONTINUING TO RISE --- UP 18 POINTS FROM MARCH.

---

$$\begin{aligned} \text{EARNED COSTS} &= \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} \\ \text{(CUMULATIVE)} &= \frac{46}{100} \times 1,873,000 = \$ 861,580 \end{aligned}$$

THIS CONTRACTOR, BEING AT 46% COMPLETE, HAS THEORETICALLY EARNED \$ 861,580.

---

$$\begin{aligned} \text{COST PERFORMANCE INDEX} &= \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} \\ \text{(CUMULATIVE) - CPI} &= \frac{861,580}{557,000} = 1.55 \end{aligned}$$

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.55 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. UP \$0.31 FROM MARCH.

---

$$\begin{aligned} \text{COST VARIANCE} &= \text{ACTUAL \$ SPENT} - \text{EARNED \$} \\ \text{(CUMULATIVE)} &= 557,000 - 861,580 = \$ (304,580) \end{aligned}$$

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$304,580.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A245 WILSHIRE/LABREA STATION  
DESIGN CONTRACTOR - STV ENGINEERS/LYON ASSOCIATES

---

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \text{ACTUAL COSTS SPENT} \\ \text{(CUMULATIVE)} \end{array} = \frac{557,000}{\text{FORECAST AT COMPLETION}} = \frac{557,000}{1,873,000} = 30\%$$

THE CONTRACTOR HAS SPENT 30% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 46%.

---

$$\begin{array}{l} \text{EST. AT COMPLETION} \\ \text{(CALCULATED - EAC)} \end{array} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{1,873,000}{1.55} = \$1,208,387$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$1,208,387. THIS REPRESENTS A COST UNDERRUN OF \$400,613 OR A 25% DECREASE.

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$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{1,873,000 - 861,580}{1,873,000 - 557,000} = 77\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 77% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

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CONCLUSION

AGAIN THE PRODUCTIVITY AND COST PERFORMANCE INDEX FIGURES ARE WELL OVER 100%, YET THE CONSULTANT IS BEHIND IN PROGRESS. HOWEVER, THE EXTENT OF THE PROGRESS LAG HAS IMPROVED STEADILY IN THE LAST THREE MONTHS, FROM 10 POINTS BEHIND PROGRESS IN FEBRUARY, 7.5 IN MARCH, TO 4 POINTS IN APRIL.



05/31/84  
PC-14.20<14>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A245 Wilshire/La Brea Station	AWARD: 10/17/83
DESIGN SUBCONTRACTOR: STV/Lyon	NTP: 10/10/83
PROJECT MANAGER(TSD/MRTC): Streitman/Hodges	DURATION: 365 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	10/24/83	-	11/16/83	-
IN PROG. SUBMITTAL (60%)	04/16/84	05/07/84	-	-22
PRE FINAL SUBMITTAL (85%)	07/07/84	07/07/84	-	-
FINAL SUBMITTAL (100%)	10/16/84	10/15/84	-	-
BID DOCUMENTS	10/06/84	10/06/84	-	-
TIME OF PERFORMANCE	10/09/84	10/09/84	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

The Section Designer continues to work overtime to regain the schedule.

AREAS OF CONCERN:

- . The relocation of the 42-inch stormdrain is being studied. Relocation through the station is being considered as well as other alternatives.
- . Seismic criteria and soils resistivity information is needed for design (structural).

COMMENTS:

- . The architectural presentation to the Board is scheduled for May 3, 1984.
- . The In-Progress Submittal (60%) remains three weeks late, forecasted to May 7, 1984.
- . Monthly update for April did not include the CPM Network Diagram.
- . Overall progress reported by the Section Designer has increased substantially during the past two periods and is expected to be on schedule by the end of May.

PERFORMANCE ASSESSMENT:

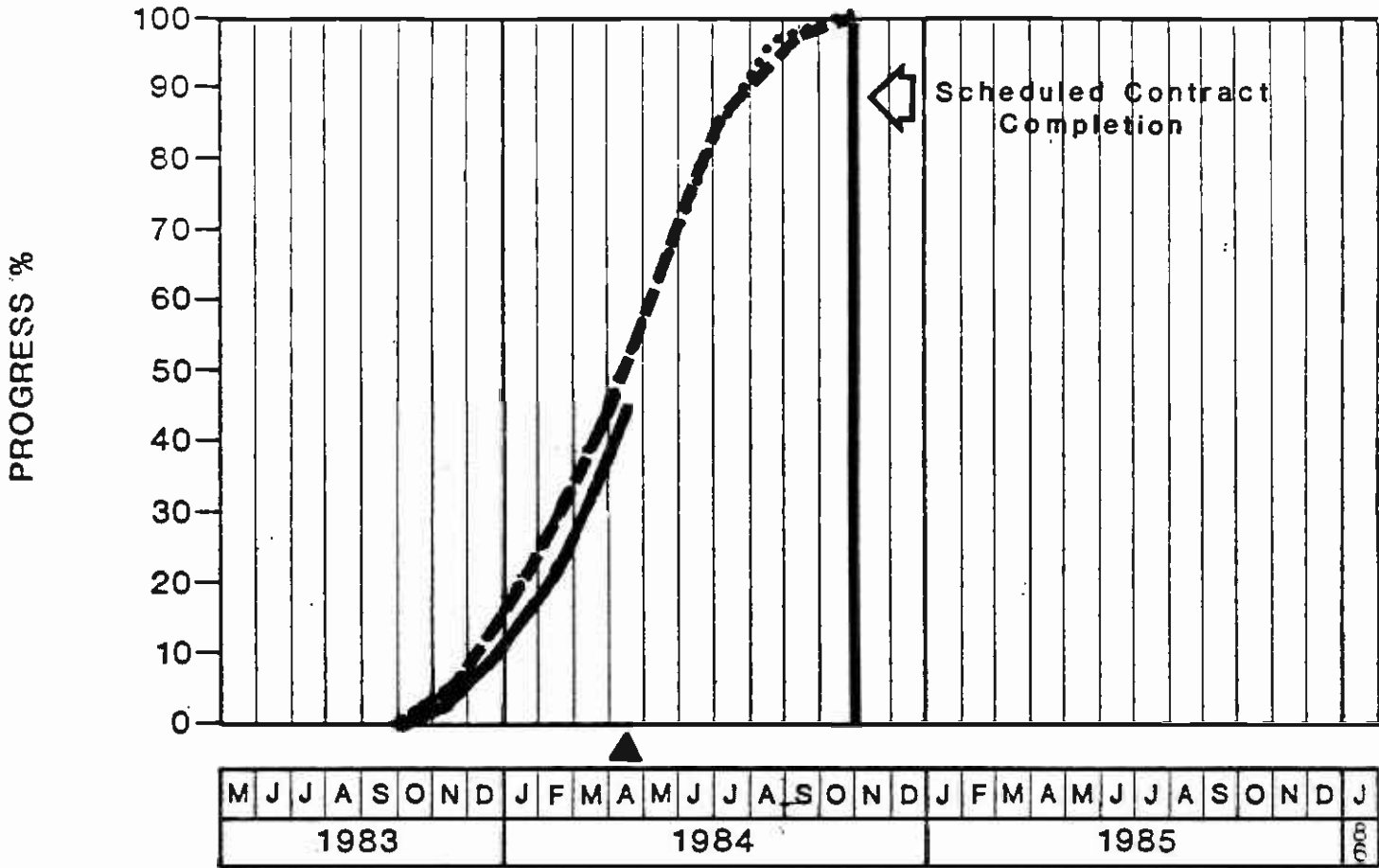
The Section Designer is three weeks behind schedule. Recovery to the schedule is expected in May.

CONTRACT # A245

DESCRIPTION WILSHIRE/LA BREA STATION

SECTION DESIGNER STV ENGINEERS/LYON ASSOCIATES

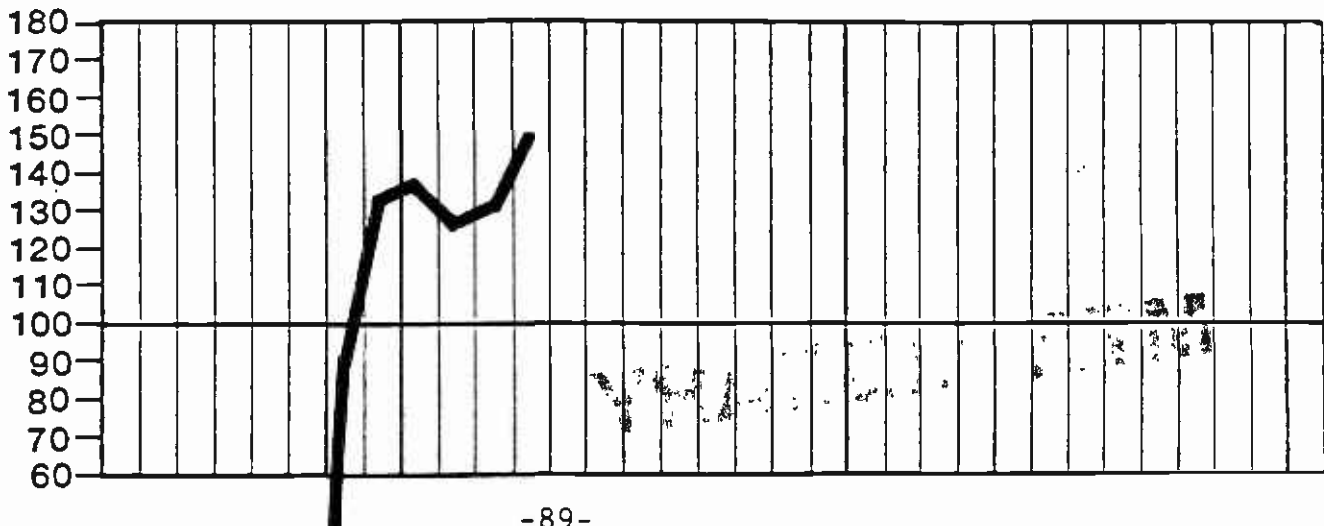
MRTC	PLAN	-----
PROGRESS	ACTUAL	—————
REPORT	FORECAST	.....



PROGRESS %

MRTC REPORT	PLANNED							2	5	12	20	30	40	50	65	80	88	93	97	100	
	ACTUAL							0	4	9.5	15	20	32.5	46							
	FORECAST							2	5	12	20	30	40	50	65	80	88	93	95	98	100

CUMULATIVE  
PRODUCTIVITY %

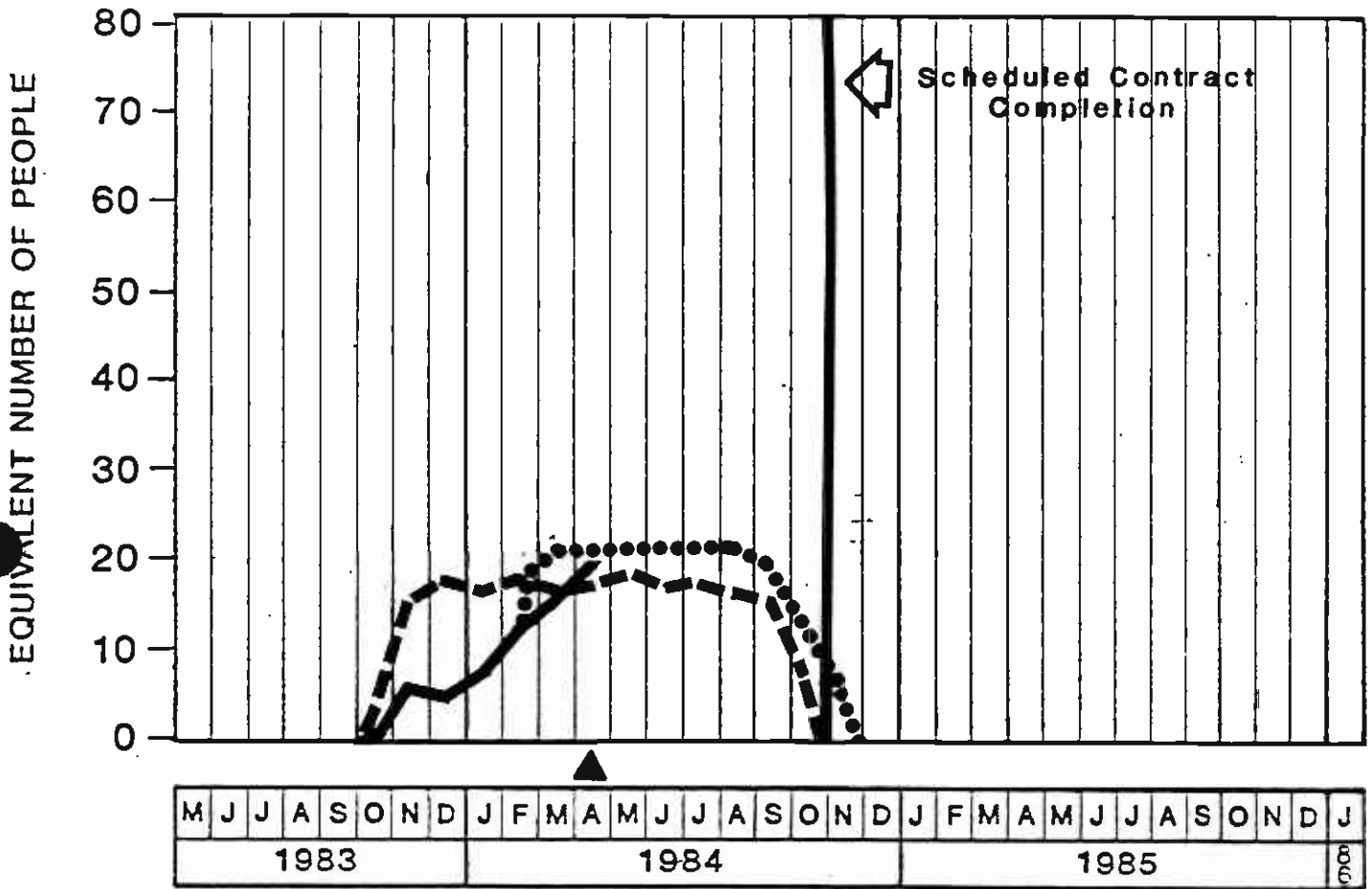


CONTRACT # A245

DESCRIPTION WILSHIRE/LA BREA STATION

SECTION DESIGNER STV ENGINEERS/LYON ASSOCIATES

### MANPOWER PLAN



PLANNED 

FORECAST 

ACTUAL 

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # -- A250 WILSHIRE/FAIRFAX STATION & LINE  
DESIGN CONTRACTOR -- BECHTEL

COMMENTS ON MRTIC PROGRESS REPORT

- o AT SO EARLY IN THE CONTRACT IT WOULD SEEM PREMATURE TO FORECAST A SCHEDULE SLIPPAGE.

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	5	5	6
INCREMENTAL PROGRESS	3	3	4
COST	4,196,000	4,462,000	139,000
MANHOURS	77,000	81,900	2,500
CONTRACT DURATION	16	18	2

$$\text{PRODUCTIVITY} = \frac{\% \text{ COMPLETE} \times \text{TOTAL MH FORECAST}}{\text{MTRS. SPENT}} = \frac{.06 \times 81,900}{2,500} \times 100 = 197\%$$

$$\text{EARNED COSTS} = \frac{\% \text{ COMPLETE} \times \text{TOTAL COST FORECAST}}{\text{(CUMULATIVE)}} = .06 \times 4,462,000 = \$ 267,720$$

THIS CONTRACTOR, BEING AT 6% COMPLETE, HAS THEORETICALLY EARNED \$267,720.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{267,720}{139,000} = \$ 1.93$$

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.93 WORTH OF WORK FOR EVERY DOLLAR WE SPEND.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 139,000 - 267,720 = \$ 128,720$$

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$128,720.

COST ANALYSIS  
(CONTINUED)

CONTRACT # -- A250 WILSHIRE/FAIRFAX STATION & LINE  
DESIGN CONTRACTOR -- BECHTEL

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \text{ACTUAL COSTS SPENT} \\ \text{(CUMULATIVE)} \end{array} \frac{\quad}{\text{FORECAST AT COMPLETION}} = \frac{139,000}{4,462,000} = 3\%$$

THE CONTRACTOR HAS SPENT 3% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 6%.

$$\begin{array}{l} \text{EST. AT COMPLETION} \\ \text{(CALCULATED -- EAC)} \end{array} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{4,462,000}{1.93} = \$2,311,917$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,311,917. THIS REPRESENTS A COST UNDERRUN OF \$1,884,083 OR A 45% DECREASE.

$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{4,462,000 - 267,720}{4,462,000 - 139,000} = 97\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 97% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

IT IS TOO EARLY IN THE CONTRACT TO MAKE ANY FIRM CONCLUSIONS ABOUT PROGRESS OR COST PERFORMANCE.

THE ADDITIONAL COST (\$266,000) SHOWN IN THE FORECAST IS PRIMARILY FOR THE PREPARATION OF CONSTRUCTION DOCUMENTS FOR A TEST PIT.

05/31/84  
PC-14.20<15>

### SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A250 Line Section and Stage I Wilshire/Fairfax	AWARD: 12/28/83
DESIGN SUBCONTRACTOR: Bechtel	NTP: 03/12/84
PROJECT MANAGER (TSD/MRTC): Streitman/Cooper	DURATION: 462 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	03/26/84	-	04/12/84	-
IN PROG. SUBMITTAL (60%)	10/25/84	10/25/84	-	-
PRE-FINAL SUBMITTAL (85%)	02/20/85	02/20/85	-	-
FINAL SUBMITTAL (100%)	06/12/85	06/12/85	-	-
BID DOCUMENTS	07/12/85	07/12/85	-	-
TIME OF PERFORMANCE	06/17/85	06/17/85	-	-

#### RESOLUTIONS OF LAST PERIODS PROBLEMS:

No areas of concern were reported last period.

#### AREAS OF CONCERN:

No areas of concern exist at this time.

#### COMMENTS:

- . Test Pit details are being resolved and approvals to proceed into design will be sought in the future.
- . Coordination continues between RTD and May Centers on the Test Pit and Joint Development Agreement.
- . The Control System Submittal was received by RTD; comments were transmitted to the TSD Project Manager.
- . Inconsistencies in the MRTC Progress Report and the Design Status Report appear on the period's monthly progress. TSD Project Engineer is investigating.

#### PERFORMANCE ASSESSMENT:

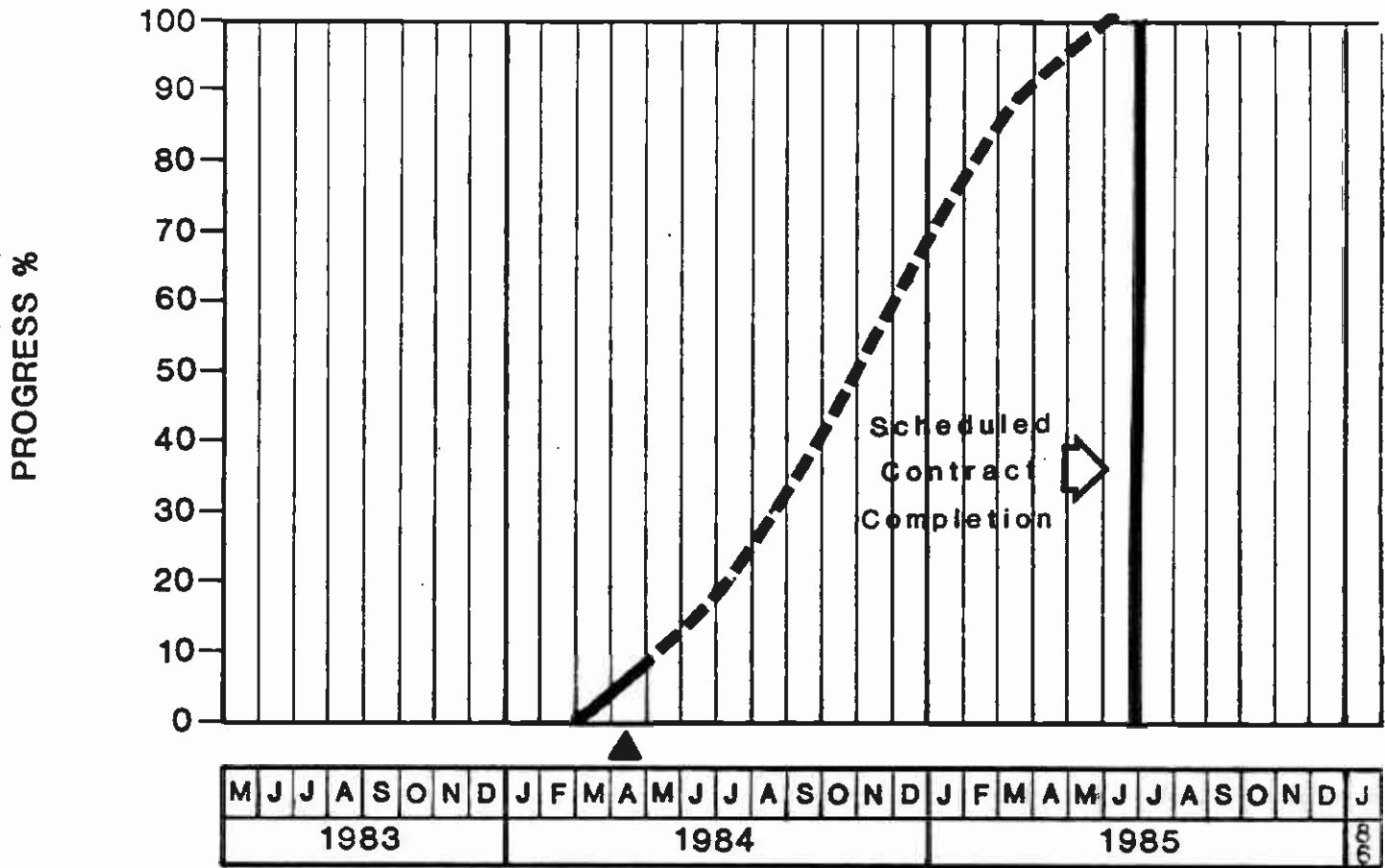
The Section Designer is on schedule. Test Pit related work can be done without any impact to the progress of the contract.

CONTRACT # A250

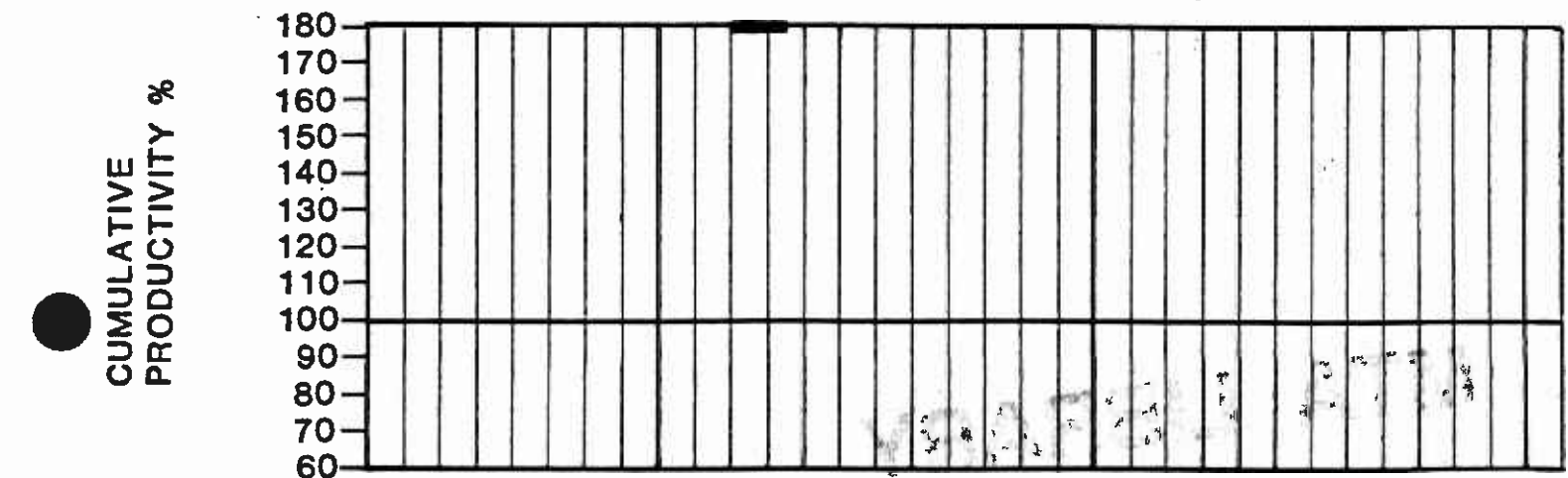
DESCRIPTION WILSHIRE/FAIRFAX STATION & LINE

SECTION DESIGNER BECHTEL

MRTC	PLAN	▬▬▬▬▬▬▬
PROGRESS	ACTUAL	▬▬▬▬▬▬▬
REPORT	FORECAST	.....



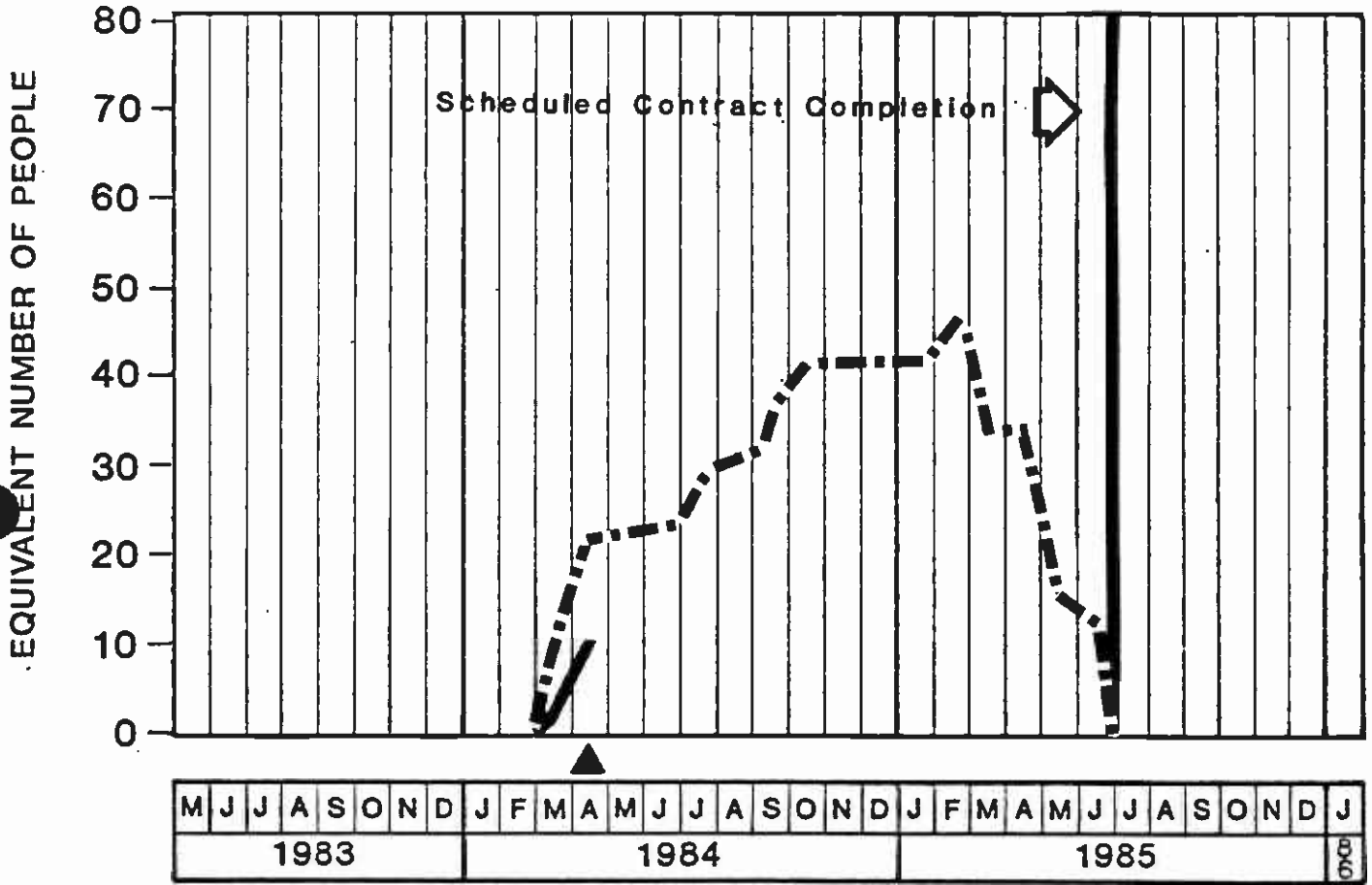
MRTC REPORT	PLANNED																																								
		2	5	9	14	20	27	36	43	54	63	74	80	87	93	97	100																								
		2	6																																						
FORECAST			NOT AVAILABLE																																						



CONTRACT # A250

DESCRIPTION WILSHIRE/FAIRFAX STATION & LINE  
SECTION DESIGNER BECHTEL

### MANPOWER PLAN



PLANNED 

FORECAST 

ACTUAL 

NOT AVAILABLE



RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A275 FAIRFAX/BEVERLY STATION  
DESIGN CONTRACTOR - WILSHIRE DESIGN ASSOCIATES

COMMENTS ON MRTC PROGRESS REPORT

- o NO REASONS GIVEN FOR INCREASE IN COST AND LABOR FORECASTS OVER THE PREVIOUS MONTH'S REPORT.

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	25	25	24
INCREMENTAL PROGRESS	10	10	12
COST	2,250,000	2,475,000	473,000
MANHOURS	41,300	45,400	7,900
CONTRACT DURATION	12	15	4

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.24 \times 45,400}{7,900} \times 100 = 138\%$$

MUCH IMPROVEMENT OVER MARCH'S FIGURE -- UP 50 POINTS.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .24 \times 2,475,000 = \$ 594,000$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 24% COMPLETE, HAS THEORETICALLY EARNED \$594,000.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{594,000}{473,000} = \$ 1.26$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.26 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. UP \$0.48 FROM MARCH.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 473,000 - 594,000 = \$ (121,000)$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$121,000.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A275 FAIRFAX/BEVERLY STATION  
DESIGN CONTRACTOR - WILSHIRE DESIGN ASSOCIATES

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \text{ACTUAL COSTS SPENT} \\ \text{(CUMULATIVE)} \end{array} = \frac{473,000}{\text{FORECAST AT COMPLETION}} = \frac{473,000}{2,475,000} = 19\%$$

THE CONTRACTOR HAS SPENT 19% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 24%.

$$\begin{array}{l} \text{EST. AT COMPLETION} \\ \text{(CALCULATED - EAC)} \end{array} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{2,475,000}{1.26} = \$1,964,286$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$1,964,286. THIS REPRESENTS A COST UNDERRUN OF \$285,714 OR A 12.7% DECREASE.

$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{2,475,000 - 594,000}{2,475,000 - 473,000} = 94\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 94% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

THIS CONTRACT HAS IMPROVED REMARKABLY SINCE THE PREVIOUS MONTH. THE LEVEL OF PRODUCTIVITY AND THE COST PERFORMANCE INDEX ARE BOTH UP, AND THE ABOVE CALCULATIONS PROJECT AN UNDERRUN INSTEAD OF THE 31% OVERRUN PROJECTED IN MARCH.

05/31/84  
PC-14.20<16>

## SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A275 Fairfax/Beverly Station	AWARD: 12/30/83
DESIGN SUBCONTRACTOR: Wilshire Design Associates	NTP: 12/30/83
PROJECT MANAGER (TSD/MRTC): Streitman/Tallett	DURATION: 365 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	01/13/84	-	02/09/84	
IN PROG. SUBMITTAL (60%)	06/28/84	06/28/84	-	-
PRE FINAL SUBMITTAL (85%)	09/29/84	09/29/84	-	-
FINAL SUBMITTAL (100%)	12/27/84	12/27/84	-	-
BID DOCUMENTS	01/26/85	01/26/85	-	-
TIME OF PERFORMANCE	12/28/84	12/28/84	-	-

### RESOLUTIONS OF LAST PERIODS PROBLEMS:

No areas of concern were reported during the previous period.

### AREAS OF CONCERN:

The City of Los Angeles street right-of-way requirements for Beverly Boulevard and Fairfax Avenue may possibly impact elevators, stairs/escalators, bus turn, and size of parking area. LA DOT has been requested to provide future right-of-way requirements.

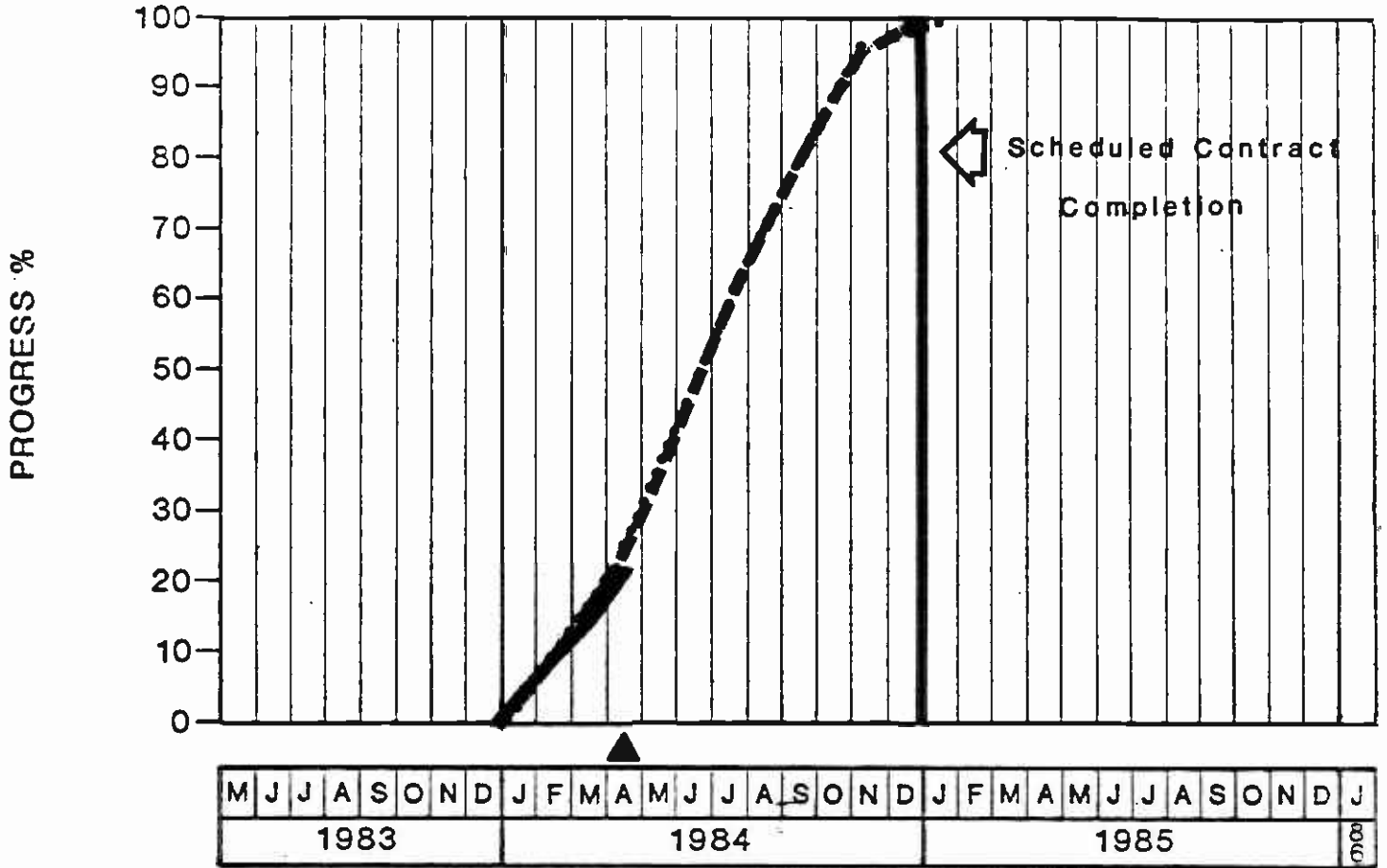
### COMMENTS:

- . RTD is continuing coordination with CBS and the Farmer's Market for future site development.
- . Noise and vibration at CBS Studios and facilities are being investigated. A site visit and coordination with Wilson-Ihrig (Noise and Vibration Consultants) will determine any potential adverse effect on CBS operations.
- . Inconsistencies in progress reporting in the various Section Designer and MRTC Reports make it difficult to determine actual percent complete.

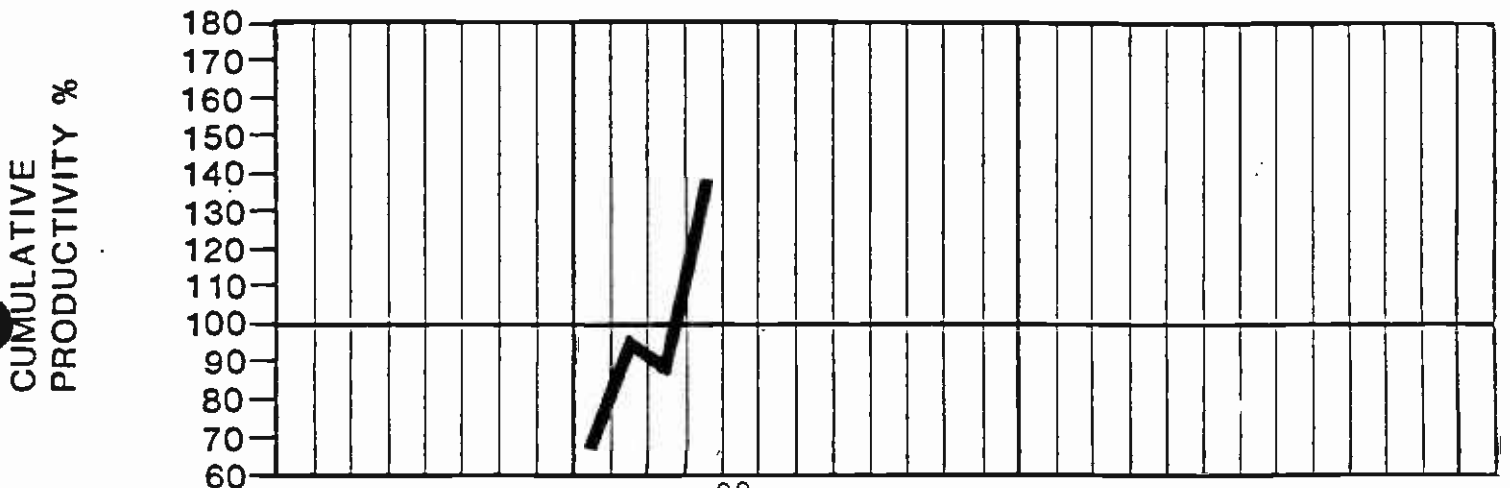
### PERFORMANCE ASSESSMENT:

The Section Designer is on schedule.

MRTC	PLAN	████████
PROGRESS	ACTUAL	—————
REPORT	FORECAST	.....



MRTC REPORT	PLANNED												ACTUAL												FORECAST												
													2	8	15	25	35	45	60	69	80	87	95	100	2	8	15	25	35	45	60	69	80	87	95	98	100
													2.6	8	12	24																					

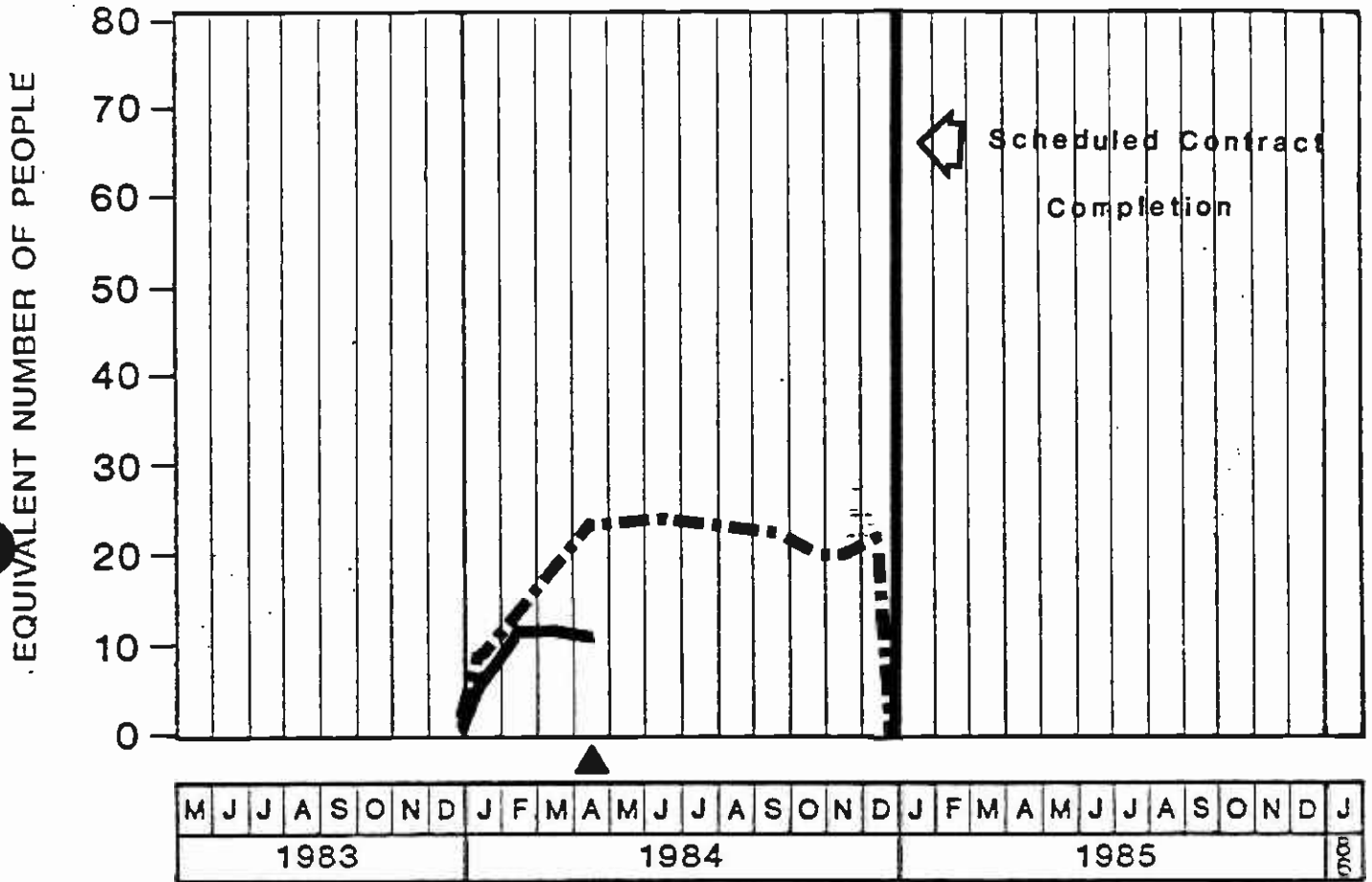


CONTRACT # A275

DESCRIPTION FAIRFAX/BEVERLY STATION

SECTION DESIGNER WILSHIRE DESIGN ASSOC.

### MANPOWER PLAN



PLANNED ————  
FORECAST ..... NOT AVAILABLE  
ACTUAL ————

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A310 FAIRFAX/SANTA MONICA & LABREA/SUNSET STATIONS  
DESIGN CONTRACTOR - CARTER ENGINEERS/AMMANN & WHITNEY

COMMENTS ON MRTIC PROGRESS REPORT

- o NO REASON GIVEN FOR INCREASE IN COST AND LABOR FORECASTS OVER THE PREVIOUS MONTH'S REPORT.

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	13	12	12
INCREMENTAL PROGRESS	4	3	4.5
COST	4,410,000	4,414,000	455,000
MANHOURS	84,200	84,300	8,500
CONTRACT DURATION	25	24	5

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.12 \times 84,300}{8,500} \times 100 = 119\%$$

(CUMULATIVE)

A SATISFACTORY PRODUCTIVITY.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .12 \times 4,414,000 = \$ 529,680$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 12% COMPLETE, HAS THEORETICALLY EARNED \$529,680.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{529,680}{455,000} = \$ 1.16$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.16 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. UP \$0.21 FROM MARCH.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 455,000 - 529,680 = \$ (74,680)$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$ 74,680.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A310 FAIRFAX/SANTA MONICA & LABREA/SUNSET STATIONS  
DESIGN CONTRACTOR - CARTER ENGINEERS/AMMANN & WHITNEY

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{rclclcl} \% \text{ SPENT} = & \text{ACTUAL COSTS SPENT} & & 455,000 & & \\ \text{(CUMULATIVE)} & \frac{\text{-----}}{\text{FORECAST AT COMPLETION}} & = & \frac{\text{-----}}{4,414,000} & = & 10\% \end{array}$$

THE CONTRACTOR HAS SPENT 10% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 12%.

$$\begin{array}{rclclcl} \text{EST. AT COMPLETION} = & \text{FORECAST AT COMPLETION} & & 4,414,000 & & \\ \text{(CALCULATED - EAC)} & \frac{\text{-----}}{\text{COST PERFORMANCE INDEX}} & = & \frac{\text{-----}}{1.16} & = & \$3,805,172 \end{array}$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$3,805,172. THIS REPRESENTS A COST UNDERRUN OF \$604,828 OR A 13.7% DECREASE.

$$\begin{array}{rclclcl} \text{TO COMPLETE} & = & \text{FORECAST AT COMPLETION} - \text{EARNED COSTS} & & 4,414,000 & - & 529,680 \\ \text{PERFORMANCE INDEX} & & \frac{\text{-----}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} & = & \frac{\text{-----}}{4,414,000 - 455,000} & & \\ & & & & & & = 98\% \end{array}$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 98% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

THE OUTLOOK FOR THIS CONTRACT IS VERY FAVORABLE THIS MONTH.

05/31/84  
PC-14.20<17>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

Page 1 of 2

DESIGN CONTRACT: A310 Fairfax/Sta. Monica, AWARD: 06/16/83  
La Brea/Sunset & Line  
DESIGN SUBCONTRACTOR: Carter Engrs./Ammann & Whitney NTP: 12/05/83  
PROJECT MANAGER (TSD/MRTC): Shah/Yacoub DURATION: 730  
(CALENDAR DAYS)

FAIRFAX/SANTA MONICA & TUNNEL

<u>MAJOR MILESTONES</u>	<u>SCHEDULED</u>	<u>FORECAST</u>	<u>ACTUAL</u>	<u>VARIANCE</u>
CONTROL SYSTEM SUBMITTAL	12/19/83	-	01/17/84*	-
IN PROG. SUBMITTAL (60%)	11/10/84	11/10/84	-	-
PRE FINAL SUBMITTAL (85%)	03/10/85	03/10/85	-	-
FINAL SUBMITTAL (100%)	06/10/85	06/10/85	-	-
BID DOCUMENTS	11/10/85	11/10/85	-	-
TIME OF PERFORMANCE	12/05/85	12/05/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

NOT RESOLVED - Section Designer's Control Systems complete submittal has not been received.

AREAS OF CONCERN:

\* The need for a comprehensive review to the subject contract remains the area of concern. Requests for a complete submittal have been made, but only the Design Control Register (dated February 1984) has been received.

COMMENTS:

Work continues on preliminary alignment and profile design and station structural design.

PERFORMANCE ASSESSMENT:

The contract is on schedule.



05/31/84  
PC-14.20<18>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

Page 2 of 2

DESIGN CONTRACT: A310 Fairfax/Sta. Monica, AWARD: 06/16/83  
LaBrea/Sunset & Line  
DESIGN SUBCONTRACTOR: Carter Engrs./Ammann & Whitney NTP: 12/05/83  
PROJECT MANAGER (TSD/MRTC): Shah/Yacoub DURATION: 730  
(CALENDAR DAYS)

<u>LA BREA/SUNSET</u> MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	12/19/83		01/17/84*	
IN PROG. SUBMITTAL (60%)	02/10/85	02/10/85	-	-
PRE FINAL SUBMITTAL (85%)	06/25/85	06/25/85	-	-
FINAL SUBMITTAL (100%)	10/10/85	10/10/85	-	-
BID DOCUMENTS	11/10/85	11/10/85	-	-
TIME OF PERFORMANCE	12/05/85	12/05/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

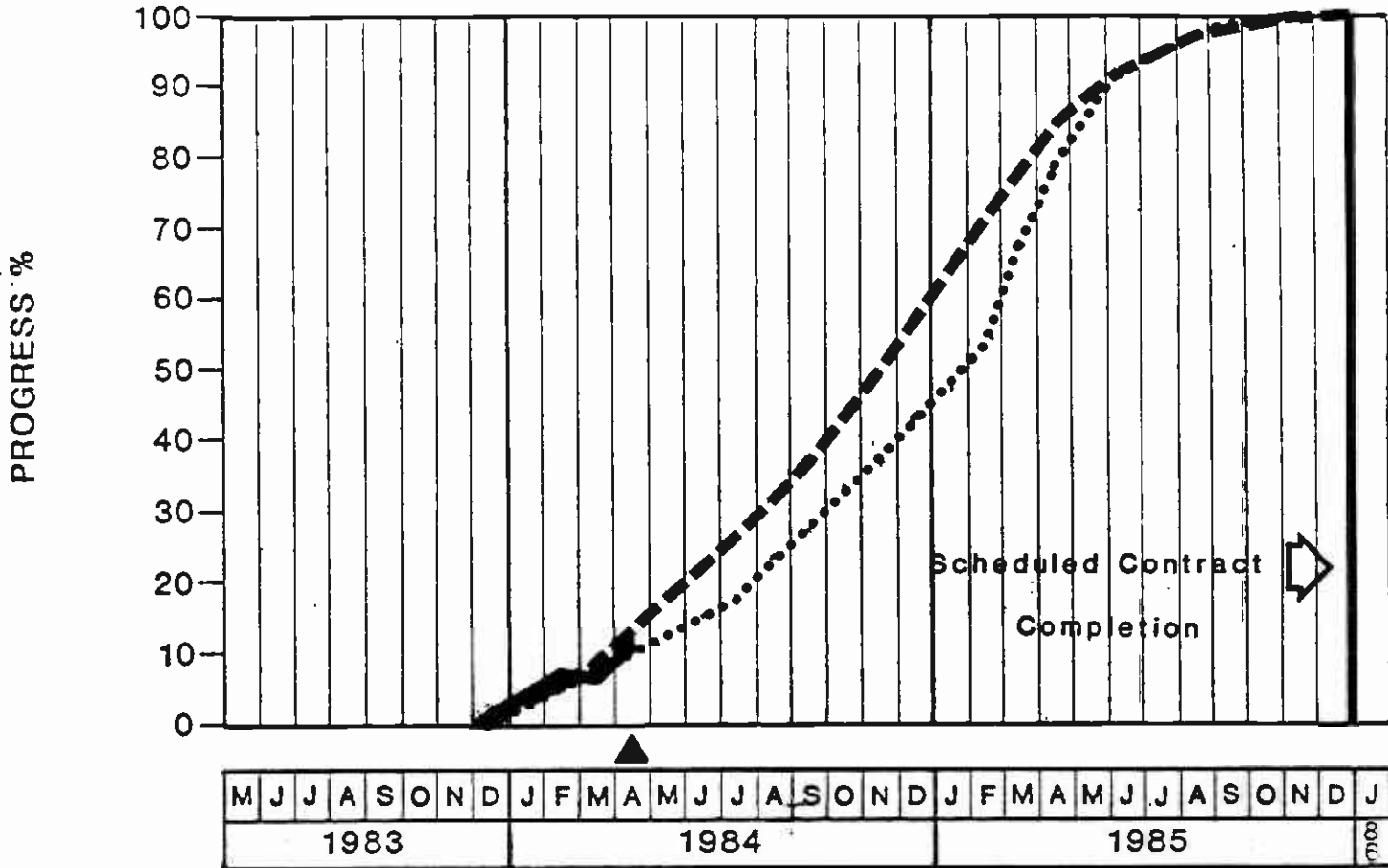
AREAS OF CONCERN:

See Comments on Page One of Contract A310

COMMENTS:

PERFORMANCE ASSESSMENT:

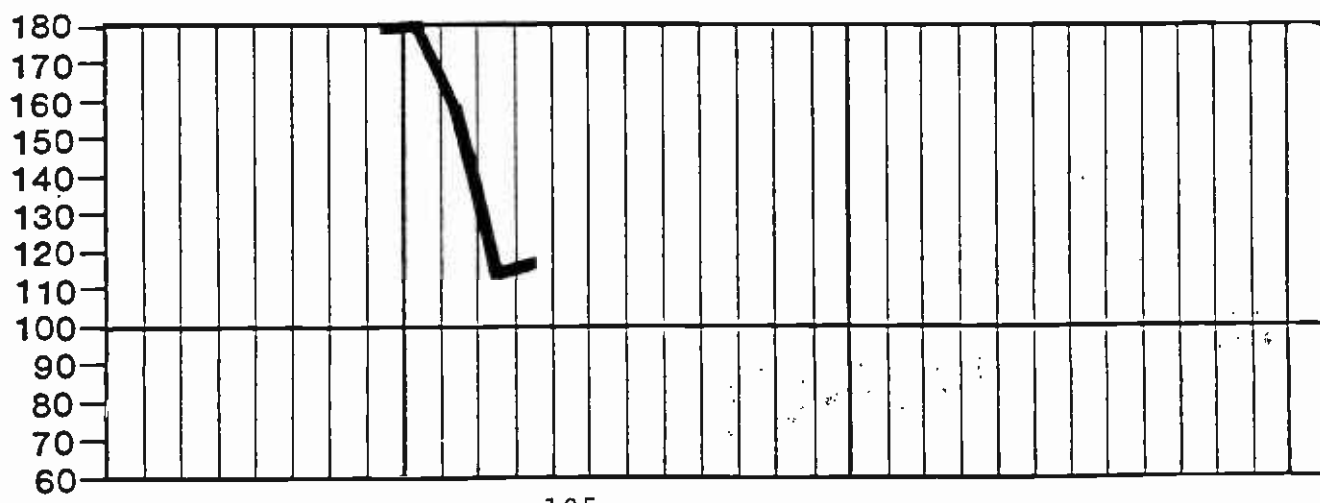
MRTC PROGRESS REPORT	PLAN ACTUAL FORECAST



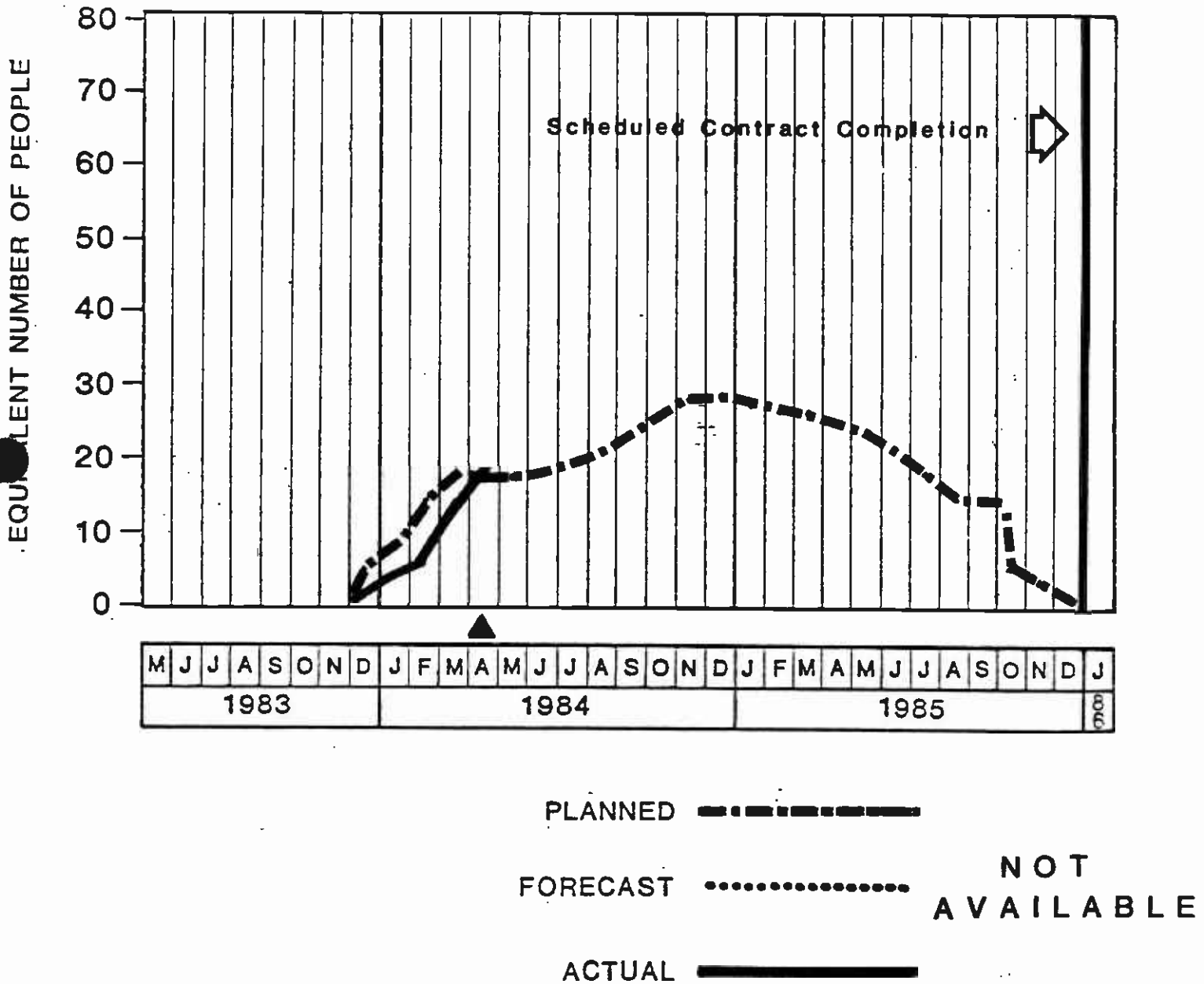
PROGRESS %

MRTC REPORT	PLANNED		ACTUAL		FORECAST	
	1	3	1.5	4	2	4
	6	9	5.5	7.5	6	9
	13	12		15	12	15
	17			17	17	17
	21			20	20	20
	25			25	25	25
	30			30	30	30
	36			35	35	35
	42			40	40	40
	49			46	46	46
	56			52	52	52
	62			61	61	61
	68			71	71	71
	74			80	80	80
	80			85	85	85
	85			90	90	90
	90			95	95	95
	94			97	97	97
	96			98	98	98
	97			99	99	99
	98			100	100	100
	99					
	100					

CUMULATIVE  
PRODUCTIVITY %



MANPOWER PLAN



RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1 1984

COST ANALYSIS

CONTRACT # - A350 HOLLYWOOD/CAHUENGA STATION  
DESIGN CONTRACTOR - STULL ASSOCIATES

COMMENTS ON MRTC PROGRESS REPORT

- o NO DISCUSSION OF PROBLEM AREAS.
- o NO DISCUSSION OF INCREASE IN FORECAST TO COMPLETION (VARIES FROM LAST MONTH).
- o NO EXPLANATION OF WHY THE PROGRESS ACHIEVED FOR THE MONTH OF FEBRUARY IS NOT BEING REPRESENTED.

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	20	20	11
INCREMENTAL PROGRESS	8	8	3
COST	2,071,000	2,293,000	294,000
MANHOURS	43,400	48,100	5,700
CONTRACT DURATION	16	19	4

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.11 \times 48,100}{5,700} \times 100 = 93\%$$

(CUMULATIVE)

THIS PRODUCTIVITY PERCENTAGE IS WITHIN A SATISFACTORY RANGE.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .11 \times 2,293,000 = \$ 252,230$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 11% COMPLETE, HAS THEORETICALLY EARNED \$252,230.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{252,230}{294,000} = \$ .86$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$ .86 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. THIS CPI IS NOT CONSISTENT WITH THE PRODUCTIVITY SHOWN ABOVE.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 294,000 - 252,230 = \$ 41,770$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY OVERRUN BY \$ 41,770.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A350 HOLLYWOOD/CAHUENGA STATION  
DESIGN CONTRACTOR - STULL ASSOCIATES

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \text{ACTUAL COSTS SPENT} \\ \text{(CUMULATIVE)} \quad \underline{\hspace{2cm}} \quad = \quad \frac{294,000}{2,293,000} \quad = \quad 13\% \\ \text{FORECAST AT COMPLETION} \end{array}$$

THE CONTRACTOR HAS SPENT 13% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 11%.

$$\begin{array}{l} \text{EST. AT COMPLETION} = \text{FORECAST AT COMPLETION} \\ \text{(CALCULATED - EAC)} \quad \underline{\hspace{2cm}} \quad = \quad \frac{2,293,000}{2,666,279} \\ \text{COST PERFORMANCE INDEX} \quad \hspace{10em} .86 \end{array}$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,666,279. THIS REPRESENTS A COST OVERRUN OF \$373,279 OR A 16% INCREASE WHEN COMPARED TO THE PRESENT FORECAST, BUT WHEN COMPARED TO BUDGET, IT IS A \$595,279 INCREASE, OR 29%.

$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \quad = \quad \frac{\text{FORECAST AT COMPLETION - EARNED COSTS}}{\text{FORECAST AT COMPLETION - ACTUAL \$ SPENT}} \\ \hspace{15em} = \quad \frac{2,293,000 - 252,230}{2,293,000 - 294,000} \\ \hspace{15em} = \quad 102\% \end{array}$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 102% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

THE CONTRACTOR IS CURRENTLY UNDERSTAFFED AND 9% BEHIND IN PROGRESS.

05/31/84  
PC-14.20<19>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A350 Hollywood/Cahuenga Station	AWARD: 06/16/83
DESIGN SUBCONTRACTOR: Stull Associates	NTP: 12/29/83
PROJECT MANAGER (TSD/MRTC): Shah/Stickel	DURATION: 486 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	01/11/84	-	02/08/84	-
IN PROG. SUBMITTAL (60%)	08/27/84	08/27/84	-	-
PRE FINAL SUBMITTAL (85%)	12/20/84	12/20/84	-	-
FINAL SUBMITTAL (100%)	05/02/85	05/02/85	-	-
BID DOCUMENTS	07/01/85	07/01/85	-	-
TIME OF PERFORMANCE	05/02/85	05/02/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

No problems reported during previous period.

AREAS OF CONCERN:

The alignment shift requiring redesign of site plans has caused the Section Designer's less than anticipated progress. The Section Designer has been requested to increase efforts in order to meet required submittal dates.

COMMENTS:

The site plan is on hold, pending resolution of bus turnaround and layover location and design.

PERFORMANCE ASSESSMENT:

The Section Designer is approximately 4-5 weeks behind schedule.

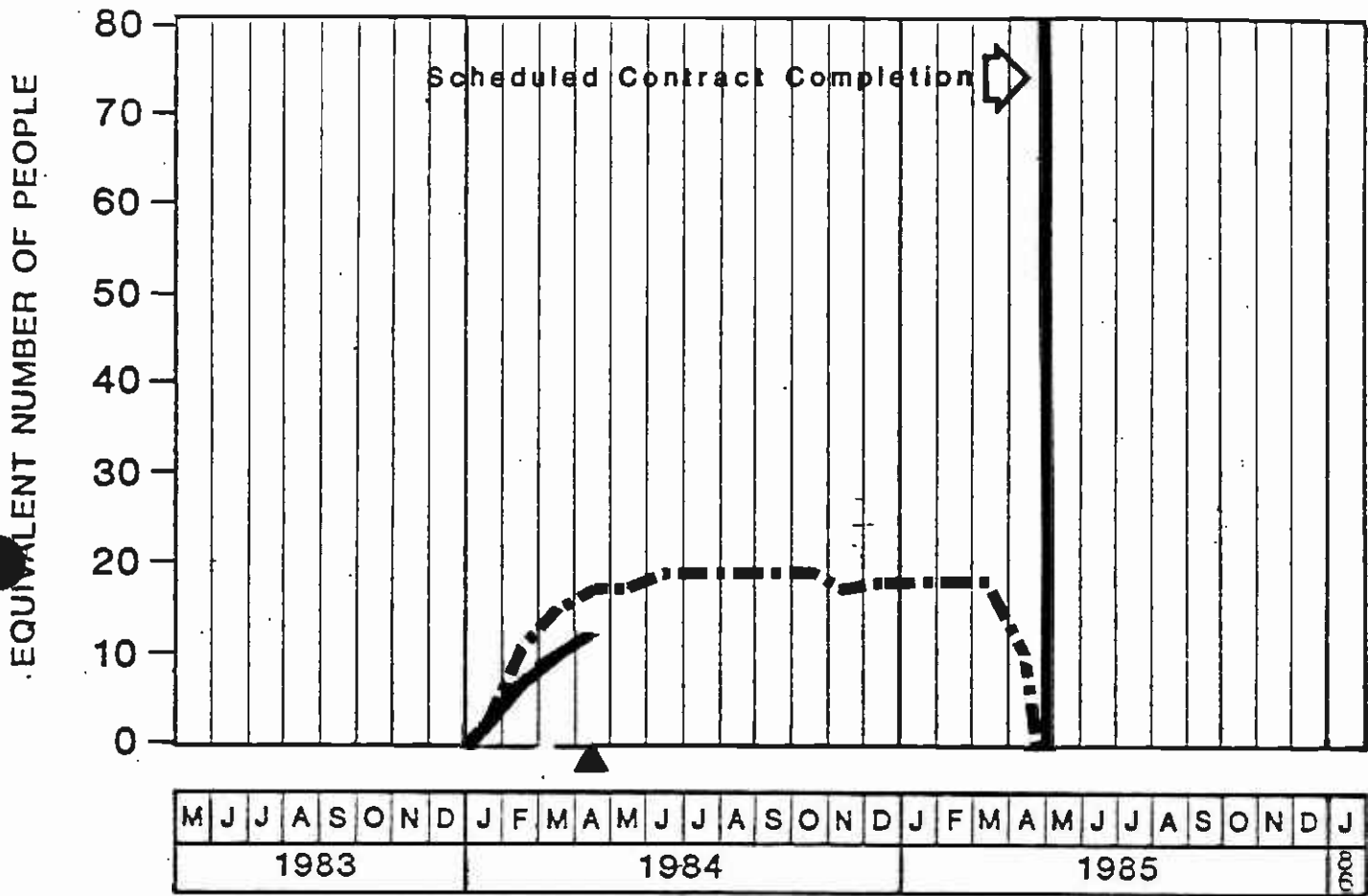


CONTRACT # A350

DESCRIPTION HOLLYWOOD/CAHUENGA STATION

SECTION DESIGNER STULL ASSOCIATES

### MANPOWER PLAN



PLANNED -----  
FORECAST .....  
ACTUAL \_\_\_\_\_



RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A410 LINE BETWEEN HOLLYWOOD/CAHUENGA AND UNIVERSAL CITY  
DESIGN CONTRACTOR - TRANSIT & TUNNEL CONSULTANTS

COMMENTS ON MRTIC PROGRESS REPORT

- o NO COMMENT ON SOILS REPORT NOT BEING SUPPLIED TO CONSULTANT AS YET. THIS WILL DELAY CONTRACT PROGRESS.

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	N/A	25	21
INCREMENTAL PROGRESS	N/A	10	8.5
COST	2,627,000	2,627,000	532,000
MANHOURS	46,000	46,000	8,300
CONTRACT DURATION	12	14	4

$$\text{PRODUCTIVITY} = \frac{\% \text{ COMPLETE} \times \text{TOTAL MH FORECAST}}{\text{MRS. SPENT}} = \frac{.21 \times 46,000}{8,300} \times 100 = 116\%$$

A VERY GOOD PRODUCTIVITY FACTOR.

$$\text{EARNED COSTS} = \frac{\% \text{ COMPLETE} \times \text{TOTAL COST FORECAST}}{\text{(CUMULATIVE)}} = .21 \times 2,627,000 = \$ 551,670$$

THIS CONTRACTOR, BEING AT 21% COMPLETE, HAS THEORETICALLY EARNED \$551,670.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{551,670}{532,000} = \$ 1.04$$

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.04 WORTH OF WORK FOR EVERY DOLLAR WE SPEND.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 532,000 - 551,670 = \$ (19,670)$$

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$19,670.

APR 24 1984

COST ANALYSIS  
 (CONTINUED)

CONTRACT # - A410 LINE BETWEEN HOLLYWOOD/CAHUENGA AND UNIVERSAL CITY  
 DESIGN CONTRACTOR - TRANSIT & TUNNEL CONSULTANTS

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \text{ACTUAL COSTS SPENT} \\ \text{(CUMULATIVE)} \quad \underline{\hspace{2cm}} = \frac{532,000}{2,627,000} = 20\% \\ \text{FORECAST AT COMPLETION} \end{array}$$

THE CONTRACTOR HAS SPENT 20% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 21%.

$$\begin{array}{l} \text{EST. AT COMPLETION} = \text{FORECAST AT COMPLETION} \\ \text{(CALCULATED - EAC)} \quad \underline{\hspace{2cm}} = \frac{2,627,000}{1.04} = \$2,525,962 \\ \text{COST PERFORMANCE INDEX} \end{array}$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,525,962. THIS REPRESENTS A COST UNDERRUN OF \$101,038 OR A 4% DECREASE.

$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{2,627,000 - 551,670}{2,627,000 - 532,000} = 99\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 99% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

CONTRACT IS PROGRESSING WELL AS THE ABOVE FIGURES ILLUSTRATE. FROM THE SUPPLIED DATA, IT APPEARS THE CONTRACT WILL FINISH UNDER BUDGET BUT WILL NEED MORE TIME TO COMPLETE THE WORK.

05/31/84  
 PC-14.20<20>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
 STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A410 Line Between Hollywood/ Cahuenga & Universal City	AWARD: 06/16/83
DESIGN SUBCONTRACTOR: Transit & Tunnel	NTP: 12/29/83
PROJECT MANAGER (TSD/MRTC): Shah/Cofer	DURATION: 365 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	01/11/84	-	02/01/84	-
IN PROG. SUBMITTAL (60%)	06/29/84	06/29/84	-	-
PRE FINAL SUBMITTAL (85%)	09/28/84	09/28/84	-	-
FINAL SUBMITTAL (100%)	12/28/84	12/28/84	-	-
BID DOCUMENTS	02/22/84	02/22/84	-	-
TIME OF PERFORMANCE	12/28/84	12/28/84	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

The Control System resubmittal has been received. Review comments have been sent to MRTC.

AREAS OF CONCERN:

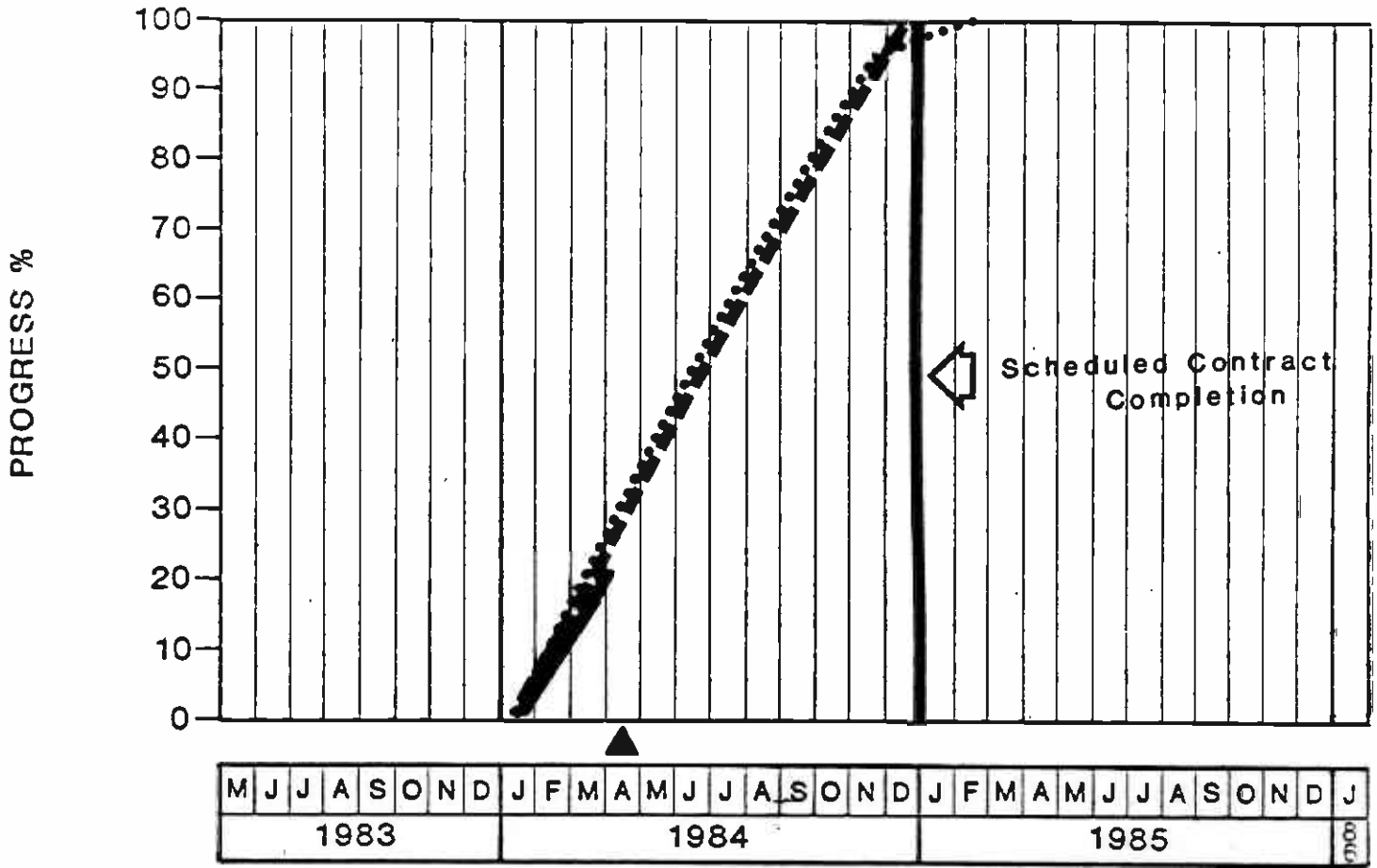
The soils data to be supplied by Converse Consultants have not been received; information is critical to contract completion.

COMMENTS:

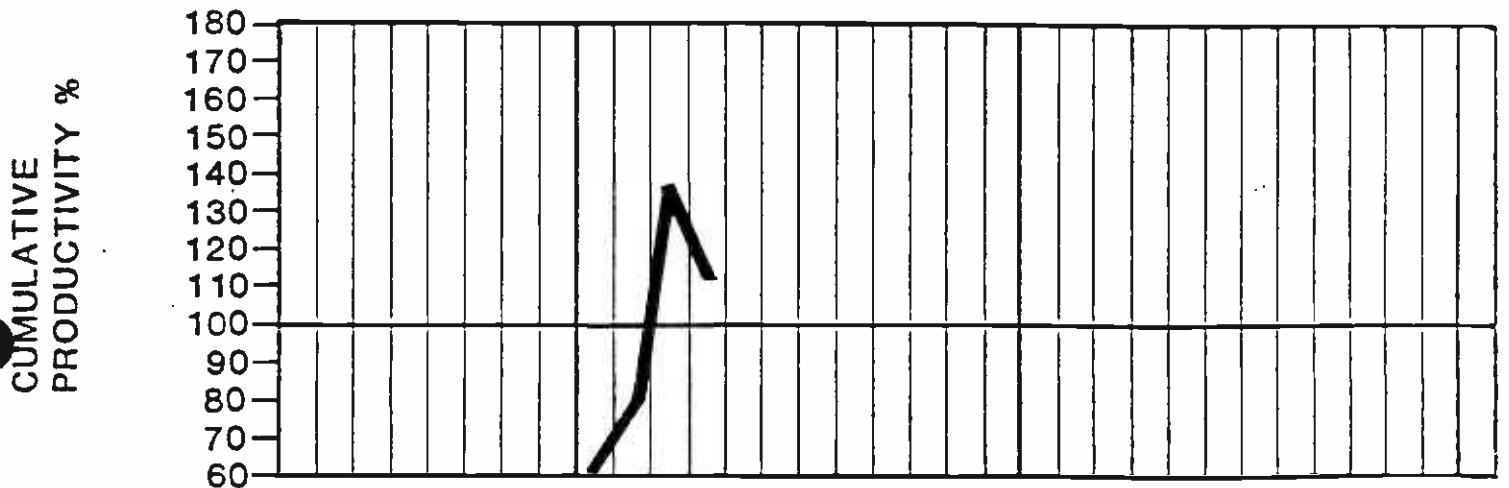
Section Designer has been given the approval of the alternate locations of the north and south vent shafts.

PERFORMANCE ASSESSMENT:

Currently, the contract is 5 weeks behind schedule due to delay in preliminary mechanical design of the north building and the delay of the submittal of additional soils data from Converse Consultants.



MRTC REPORT	PLANNED							5	10	15	25	35	45	57	70	80	87	95	100	
	ACTUAL							2	5	12.5	21									
	FORECAST							6	10	16	26	36	45	57	70	80	87	95	98	99

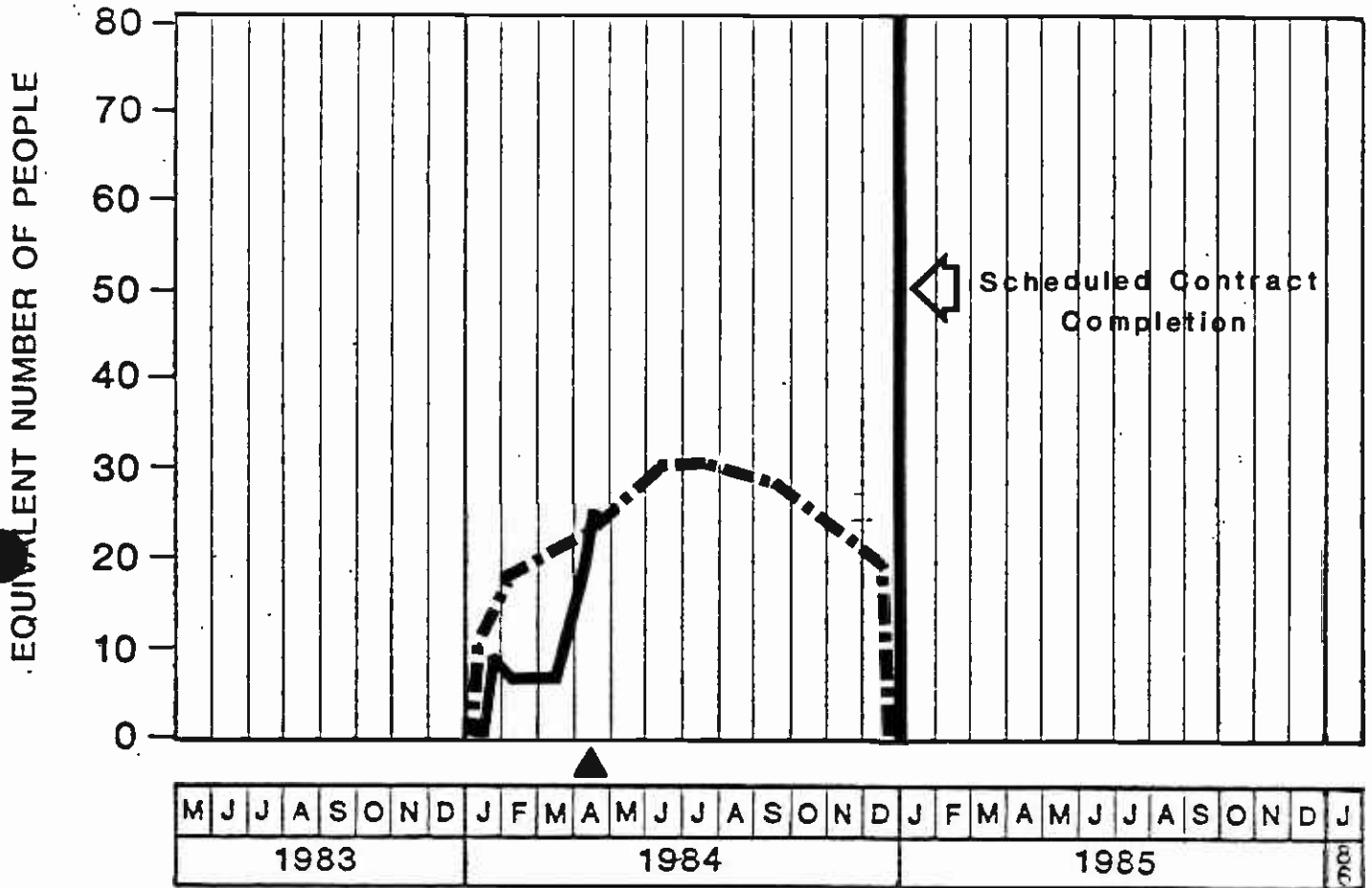


CONTRACT # A410

DESCRIPTION Line Between Hollywood/Cahuenga and Universal City

SECTION DESIGNER Transit & Tunnel Consultants

### MANPOWER PLAN



PLANNED - - - - -

FORECAST .....

ACTUAL —————

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A415 HOLLYWOOD BOWL STATION  
DESIGN CONTRACTOR - WARNECKE/GEHRY/EDWARDS & KELCEY

COMMENTS ON MRTIC PROGRESS REPORT

NONE

DATA REPORTED BY MRTIC/DESIGN CONSULTANT

	PLAN	FORECAST	ACTUAL TO DATE
% COMPLETE	N/A	15	19
INCREMENTAL PROGRESS	N/A	5	12
COST	2,014,000	2,014,000	205,000
MANHOURS	40,200	40,200	4,000
CONTRACT DURATION	13	15	3

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MRS. SPENT}} = \frac{.19 \times 40,200}{4,000} \times 100 = 191\%$$

(CUMULATIVE)

HIGHLY SUSPECT PRODUCTIVITY FACTOR.

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .19 \times 2,014,000 = \$ 382,660$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 19% COMPLETE, HAS THEORETICALLY EARNED \$ 382,660.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{382,660}{205,000} = \$ 1.87$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.87 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. AGAIN, THIS IS SUSPECT.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 205,000 - 382,660 = \$ 177,660$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$177,660.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A415 HOLLYWOOD BOWL STATION  
DESIGN CONTRACTOR - WARNECKE/GEHRY/EDWARDS & KELCEY

---

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \\ \text{(CUMULATIVE)} \end{array} = \frac{\text{ACTUAL COSTS SPENT}}{\text{FORECAST AT COMPLETION}} = \frac{205,000}{2,014,000} = 10\%$$

THE CONTRACTOR HAS SPENT 10% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 19%.

---

$$\begin{array}{l} \text{EST. AT COMPLETION} = \\ \text{(CALCULATED - EAC)} \end{array} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{2,014,000}{1.87} = \$1,077,005$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$1,077,005. THIS REPRESENTS A COST UNDERRUN OF \$936,998 OR A 47% DECREASE.

---

$$\begin{array}{l} \text{TO COMPLETE} \\ \text{PERFORMANCE INDEX} \end{array} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{2,014,000 - 382,660}{2,014,000 - 205,000} = 90\%$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 90% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

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CONCLUSION

05/31/84  
PC-14.20<21>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A415 Hollywood Bowl Station  
DESIGN SUBCONTRACTOR: Edwards & Kelcey  
PROJECT MANAGER (TSD/MRTC): Tahir/Cofer

AWARD: 09/16/83  
NTP: 02/13/84  
DURATION: 365  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	02/27/84	-	03/08/84	-
IN PROG. SUBMITTAL (60%)	08/13/84	08/13/84	-	-
PRE FINAL SUBMITTAL (85%)	11/19/84	11/19/84	-	-
FINAL SUBMITTAL (100%)	02/11/85	02/11/85	-	-
BID DOCUMENTS	02/15/85	02/15/85	-	-
TIME OF PERFORMANCE	02/11/85	02/11/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

There were no problems reported last period.

AREAS OF CONCERN:

There are no areas of concern for this period.

COMMENTS:

- . The In-Progress Architectural Design Review for the subject contract was held April 11, 1984.
- . Mr. Nadeem Tahir is the new TSD Manager assigned to the subject contract.
- . A review submittal for this contract was not received for this period.

PERFORMANCE ASSESSMENT:

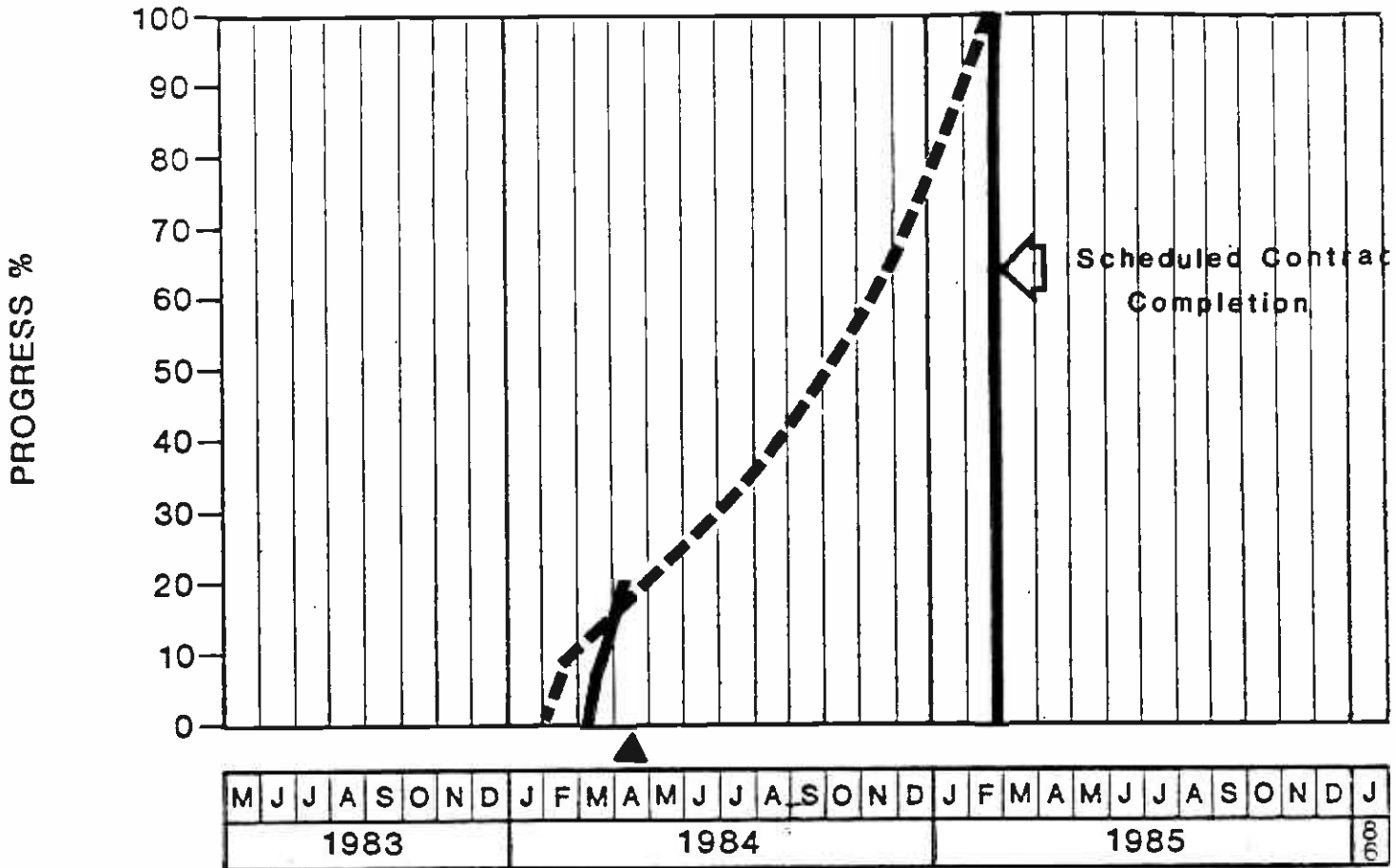
The Section Designer is on schedule.



DESCRIPTION **Hollywood Bowl**

SECTION DESIGNER **Warnecke/Gehry/Edwards & Kelcey**

MRTC	PLAN	-----
PROGRESS	ACTUAL	—————
REPORT	FORECAST	.....

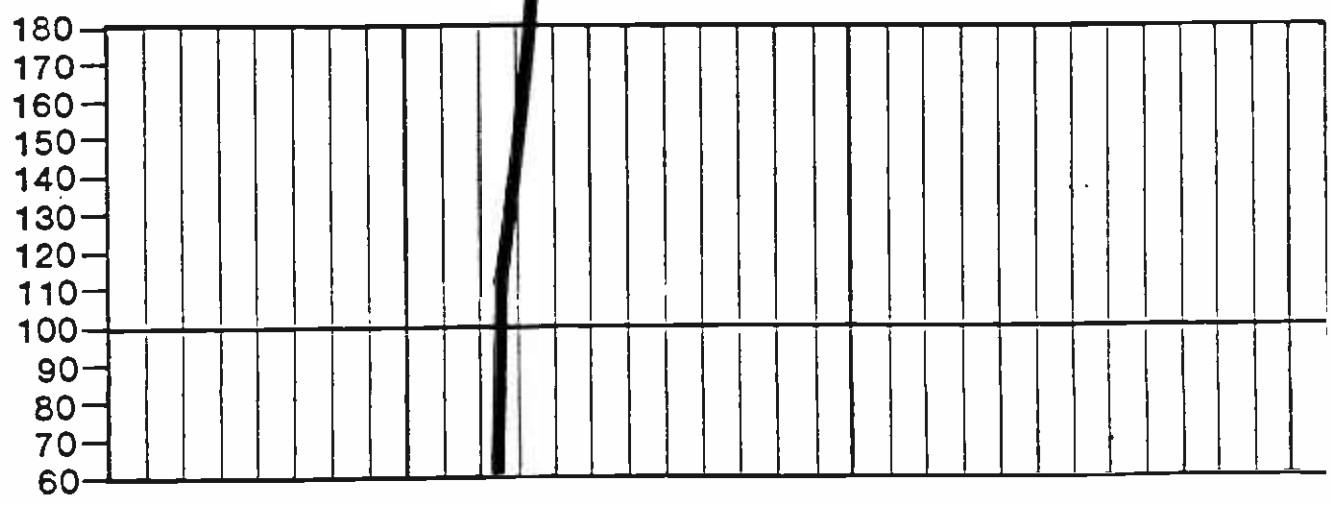


M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
1983								1984								1985								1986								

PROGRESS %

MRTC REPORT	PLANNED								6	10	15	21	30	40	50	62	72	82	92	97	100	
	ACTUAL								0	7	19											
	FORECAST	NOT AVAILABLE																				

CUMULATIVE  
PRODUCTIVITY %

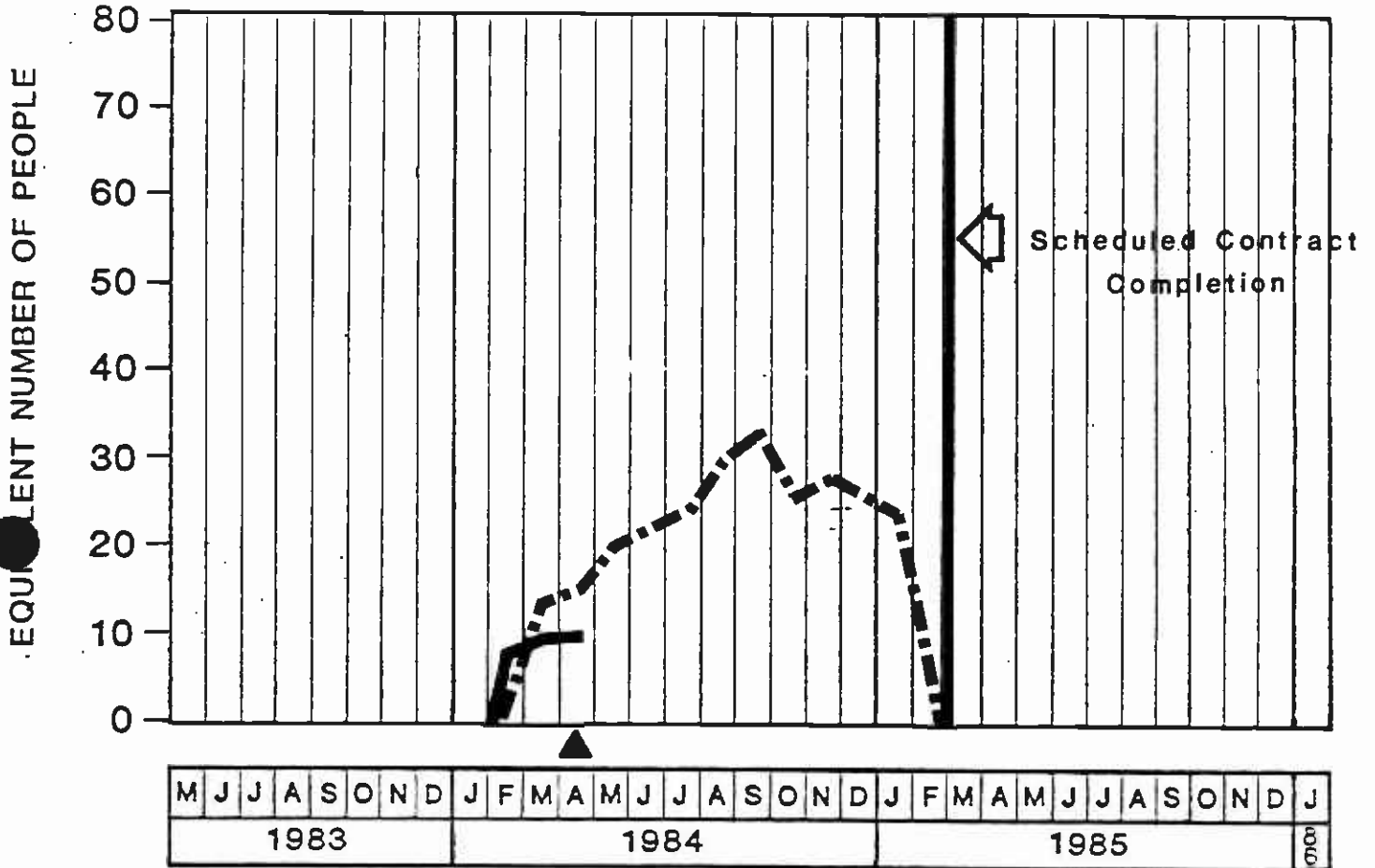


CONTRACT # A415

DESCRIPTION Hollywood Bowl

SECTION DESIGNER Warnecke/Gehry/Edwards & Kelcey

### MANPOWER PLAN



PLANNED - - - - -

FORECAST .....

ACTUAL \_\_\_\_\_

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A425 UNIVERSAL CITY STATION  
DESIGN CONTRACTOR - THE LUCKMAN PARTNERSHIP

COMMENTS ON MRTC PROGRESS REPORT

- o NO REASONS GIVEN FOR INCREASE IN COST AND LABOR FORECASTS OVER THE PREVIOUS MONTH'S REPORT.
- o ON TABLE IV-32, THE MONTHLY PLANNED MANHOURS FIGURE FOR FEBRUARY 1985 SHOULD BE 23 AND THE CUMULATIVE PLANNED MANHOURS 535.

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	15	15	22
INCREMENTAL PROGRESS	5	5	13.5
COST	2,403,000	2,415,000	448,000
MANHOURS	53,500	54,300	9,400
CONTRACT DURATION	13	15	3

$$\text{PRODUCTIVITY} = \frac{\% \text{ COMPLETE} \times \text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.22 \times 54,300}{9,400} \times 100 = 127\%$$

THIS IS A VERY SATISFACTORY PRODUCTIVITY.

$$\text{EARNED COSTS} = \frac{\% \text{ COMPLETE} \times \text{TOTAL COST FORECAST}}{\text{(CUMULATIVE)}} = \frac{.22 \times 2,415,000}{1} = \$ 531,300$$

THIS CONTRACTOR, BEING AT 22% COMPLETE, HAS THEORETICALLY EARNED \$531,300.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{531,300}{448,000} = \$ 1.19$$

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.19 WORTH OF WORK FOR EVERY DOLLAR WE SPEND.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 448,000 - 531,300 = \$ (83,300)$$

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$ 83,300.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A425 UNIVERSAL CITY STATION  
DESIGN CONTRACTOR - THE LUCKMAN PARTNERSHIP

PERFORMANCE ASSESSMENT (CONTINUED)

% SPENT = (CUMULATIVE)	ACTUAL COSTS SPENT	=	448,000	=	19%
	FORECAST AT COMPLETION	=	2,415,000	=	

THE CONTRACTOR HAS SPENT 19% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 22%.

EST. AT COMPLETION (CALCULATED - EAC)	=	FORECAST AT COMPLETION	=	2,415,000	=	\$2,029,412
		COST PERFORMANCE INDEX		1.19		

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,029,412. THIS REPRESENTS A COST UNDERRUN OF \$373,588 OR A 15.5% DECREASE.

TO COMPLETE PERFORMANCE INDEX	=	FORECAST AT COMPLETION - EARNED COSTS	=	2,415,000 - 531,300
		FORECAST AT COMPLETION - ACTUAL \$ SPENT	=	2,415,000 - 448,000
			=	96%

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 96% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

IN THE THIRD MONTH OF A 13-MONTH CONTRACT, THE CONSULTANT IS PROGRESSING WELL. THE COST PERFORMANCE INDEX AND PRODUCTIVITY ARE BOTH OVER 100%, AND A COST UNDERRUN OF OVER 15% IS PROJECTED.

05/31/84  
PC-14.20<22>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A425 Universal City	AWARD: 02/06/84
DESIGN SUBCONTRACTOR: Luckman Partnership	NTP: 02/13/84
PROJECT MANAGER (TSD/MRTC): Quesada/McCauley	DURATION: 365 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	02/27/84	-	03/27/84	-
IN PROG. SUBMITTAL (60%)	08/13/84	08/13/84	-	-
PRE FINAL SUBMITTAL (85%)	11/19/84	11/19/84	-	-
FINAL SUBMITTAL (100%)	02/11/85	02/11/85	-	-
BID DOCUMENTS	03/11/85	03/11/85	-	-
TIME OF PERFORMANCE	02/11/85	02/11/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

No problems were reported last period.

AREAS OF CONCERN:

There are no areas of concern for this period.

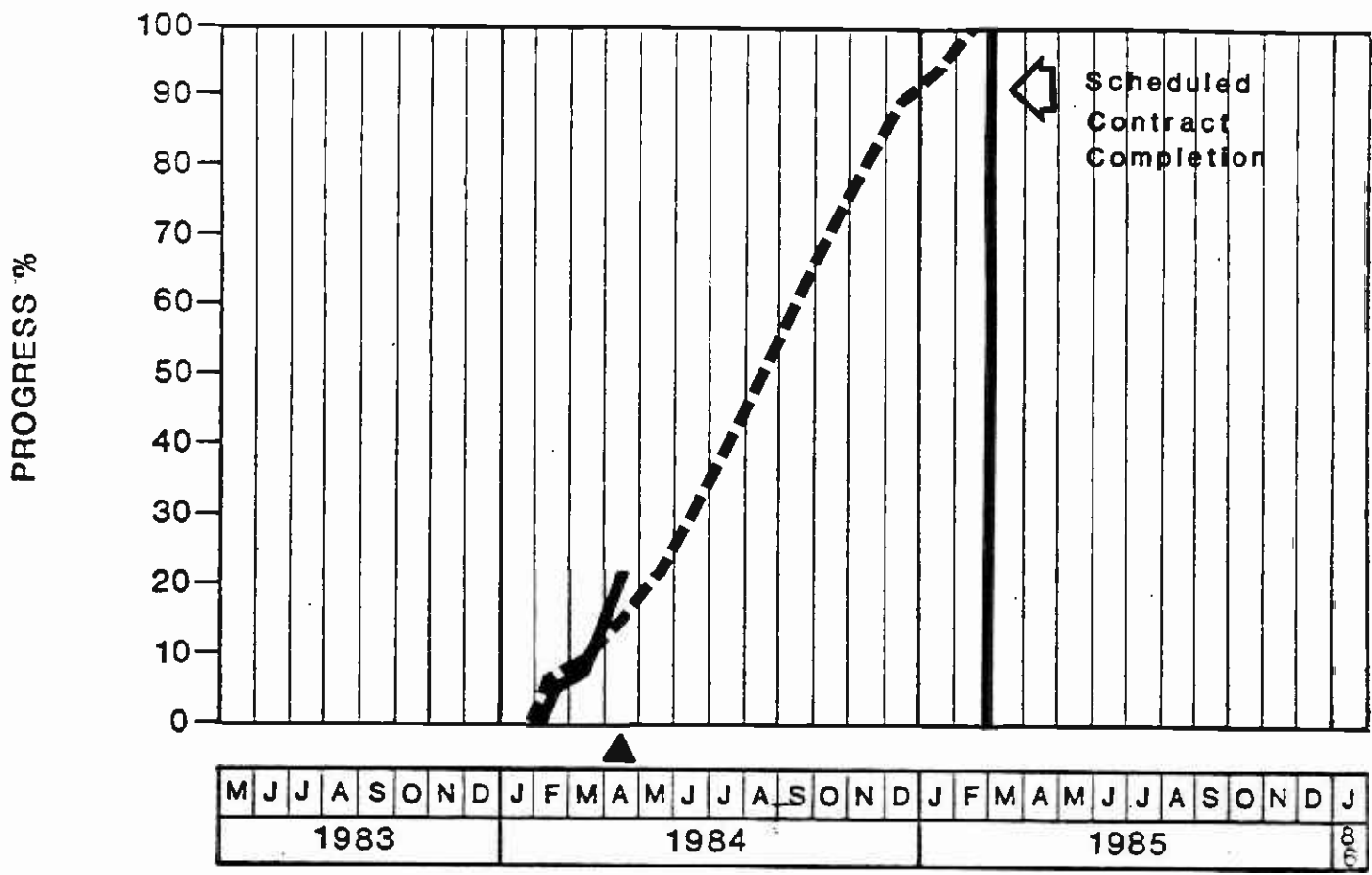
COMMENTS:

Bridge and roadway concept plans were transmitted to Caltrans, LA-District Engineer and LA DOT for approval and comment.

PERFORMANCE ASSESSMENT:

The contract is on schedule.

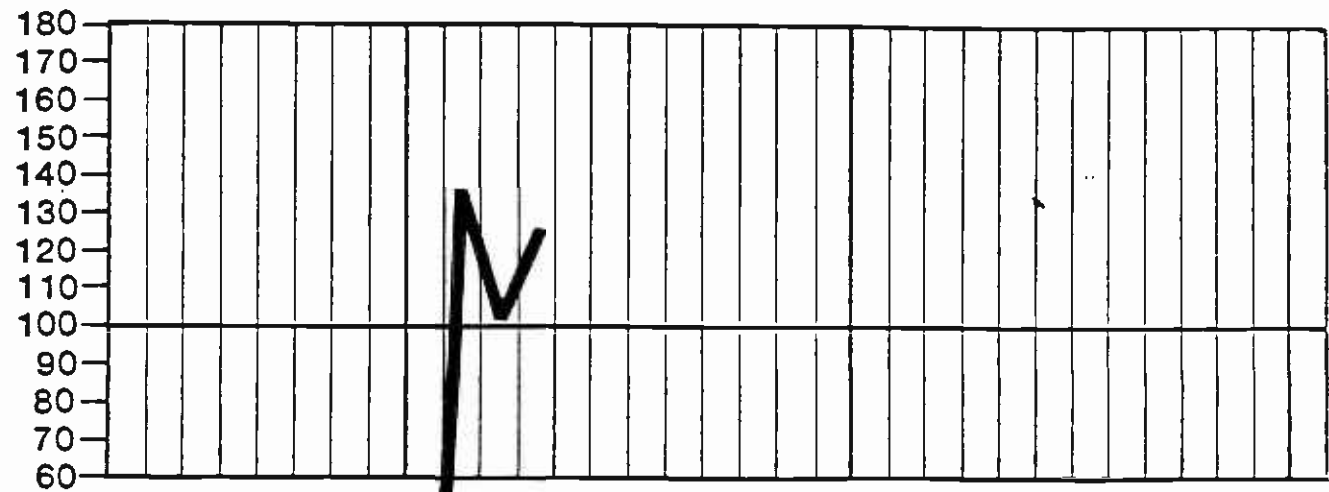
MRTC	PLAN	██████████
PROGRESS	ACTUAL	██████████
REPORT	FORECAST	.....



PROGRESS %

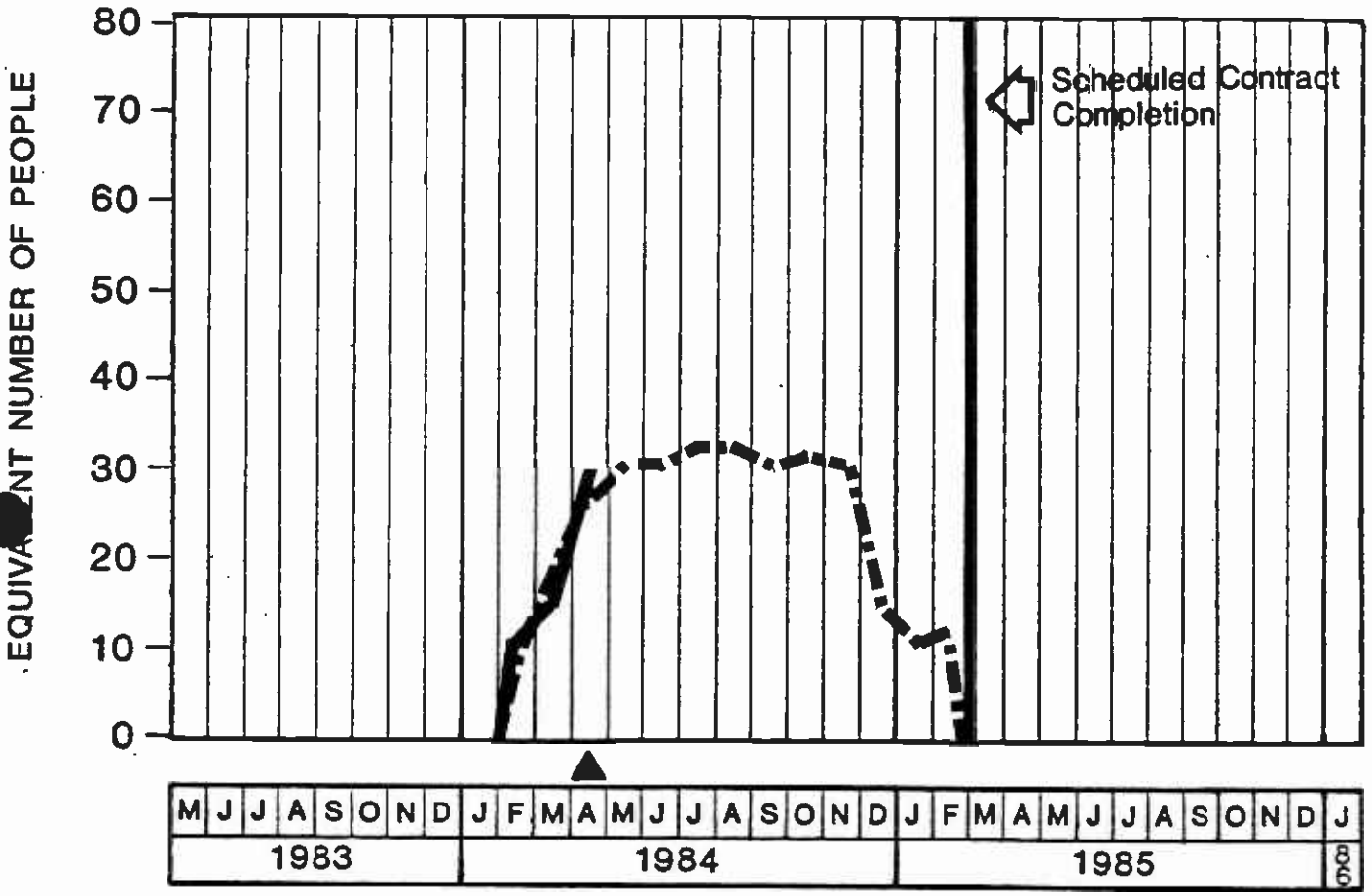
MRTC REPORT	PLANNED					5	10	15	22	31	40	50	60	71	81	90	95	100
	ACTUAL					4	8.5	22										
	FORECAST	NOT AVAILABLE																

CUMULATIVE  
PRODUCTIVITY %



CONTRACT # A425  
 DESCRIPTION UNIVERSAL CITY STATION  
 SECTION DESIGNER THE LUCKMAN PARTNERSHIP

MANPOWER PLAN



PLANNED —————  
 FORECAST ..... NOT AVAILABLE  
 ACTUAL —————

RTD METRO RAIL PROJECT  
C.P.E. PHASE  
SECTION DESIGNER EVALUATION  
APRIL 1984

COST ANALYSIS

CONTRACT # - A430 LINE BETWEEN UNIVERSAL CITY AND NORTH HOLLYWOOD STATIONS  
DESIGN CONTRACTOR - PAE/WH/S&W

COMMENTS ON MRTC PROGRESS REPORT

NONE

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	23	23	26
INCREMENTAL PROGRESS	8	8	9.5
COST	1,969,000	2,001,000	307,000
MANHOURS	40,000	40,700	6,600
CONTRACT DURATION	12	14	4

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.26 \times 40,700}{6,600} \times 100 = 160\%$$

(CUMULATIVE)

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .26 \times 2,001,000 = \$ 520,260$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 26% COMPLETE, HAS THEORETICALLY EARNED \$520,620.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{520,260}{307,000} = \$ 1.69$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$1.69 WORTH OF WORK FOR EVERY DOLLAR WE SPEND.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 307,000 - 520,260 = \$ 213,260$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY UNDERRUN BY \$213,260.



COST ANALYSIS  
 (CONTINUED)

CONTRACT # - A430 LINE BETWEEN UNIVERSAL CITY AND NORTH HOLLYWOOD STATIONS  
 DESIGN CONTRACTOR - PAE/WH/S&W

PERFORMANCE ASSESSMENT (CONTINUED)

% SPENT =	ACTUAL COSTS SPENT		307,000	
(CUMULATIVE)		=		=
	FORECAST AT COMPLETION		2,001,000	15%

THE CONTRACTOR HAS SPENT 15% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 26%. THE REPORTED PROGRESS PERCENT IS ALMOST TWICE THAT OF THE PERCENT OF BUDGET EXPENDED.

EST. AT COMPLETION =	FORECAST AT COMPLETION		2,001,000	
(CALCULATED - EAC)		=		=
	COST PERFORMANCE INDEX		1.69	\$1,184,024

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$1,184,024. THIS REPRESENTS A COST UNDERRUN OF \$784,976 OR A 40% DECREASE.

TO COMPLETE	= FORECAST AT COMPLETION - EARNED COSTS		2,001,000	-	520,260
PERFORMANCE INDEX		=		=	
	FORECAST AT COMPLETION - ACTUAL \$ SPENT		2,001,000	-	307,000
		=		=	87%

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 87% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

THE CONSULTANT'S REPORTED PROGRESS IS EXCEPTIONAL, ESPECIALLY CONSIDERING THAT HE IS ALMOST 50% BEHIND HIS PLANNED STAFFING LEVEL. IT IS VERY QUESTIONABLE THAT SUCH PROGRESS CAN BE ACHIEVED WHILE EXPENDING SO FEW HOURS.

THE ADDITIONAL COST (\$32,000) SHOWN IN THE FORECAST IS DUE PRIMARILY TO THE REVISED ALIGNMENT AT THE L.A. RIVER BRIDGE.

05/31/84  
PC-14.20<23>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: APRIL 30, 1984

DESIGN CONTRACT: A430 Line Between Universal City & AWARD: 06/16/83  
North Hollywood  
DESIGN SUBCONTRACTOR: PAE/WH/S&W NTP: 12/29/83  
PROJECT MANAGER (TSD/MRTC): Quesada/Hodges DURATION: 365  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	01/11/84	-	02/01/84	-
IN PROG. SUBMITTAL (60%)	07/06/84	07/06/84	-	-
PRE FINAL SUBMITTAL (85%)	10/08/84	10/08/84	-	-
FINAL SUBMITTAL (100%)	12/28/84	12/28/84	-	-
BID DOCUMENTS	01/28/85	01/28/85	-	-
TIME OF PERFORMANCE	12/28/84	12/28/84	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

NOT RESOLVED - Awaiting decision on location of mid-line vent structure.

AREAS OF CONCERN:

Relocation of mid-line vent structure remains the area of concern;  
Section Designer awaiting decision from MRTC.

COMMENTS:

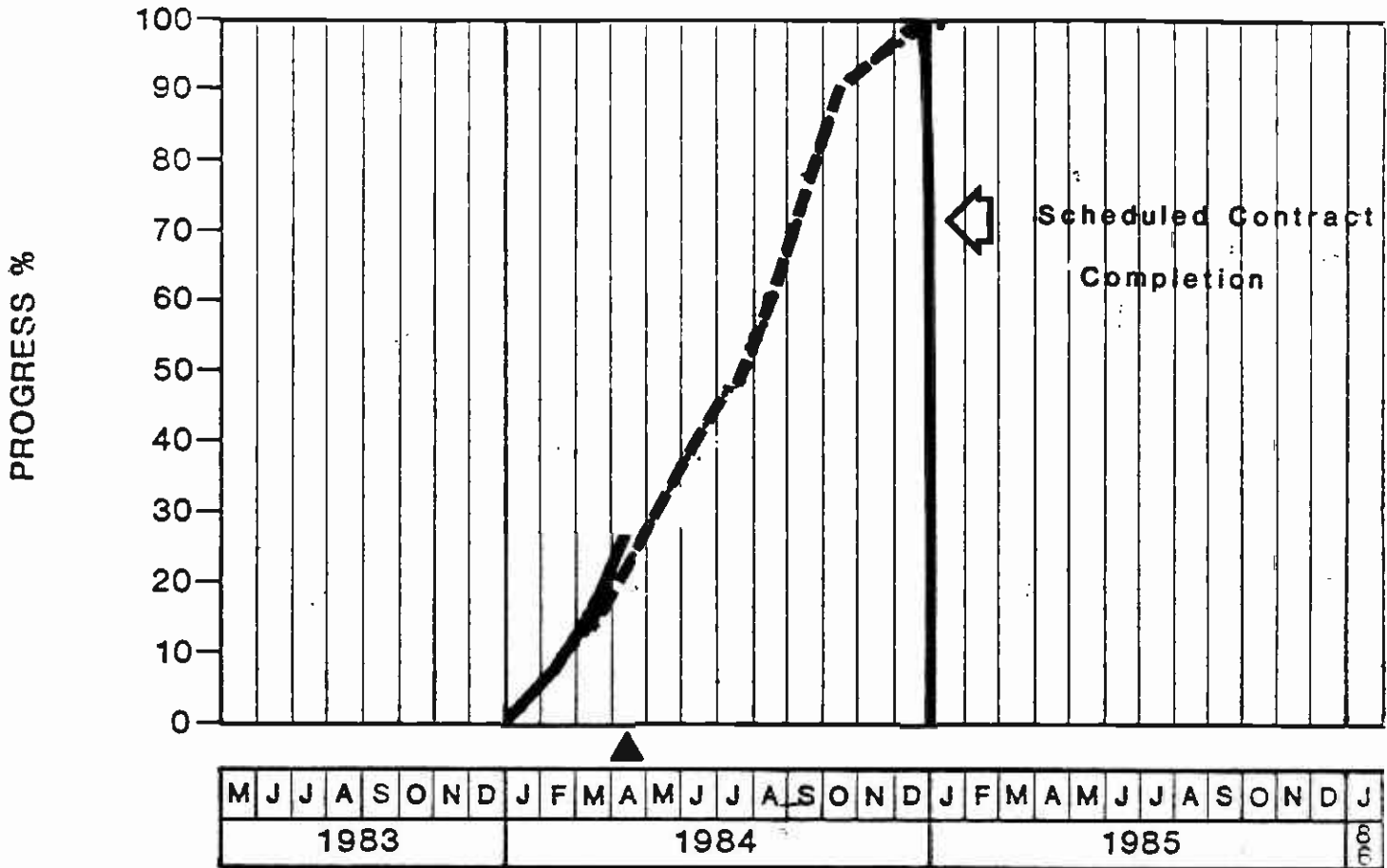
Review comments for the mid-line vent structure from TSD were transmitted  
back April 27, 1984, as scheduled. Later changes were made by MRTC.

PERFORMANCE ASSESSMENT:

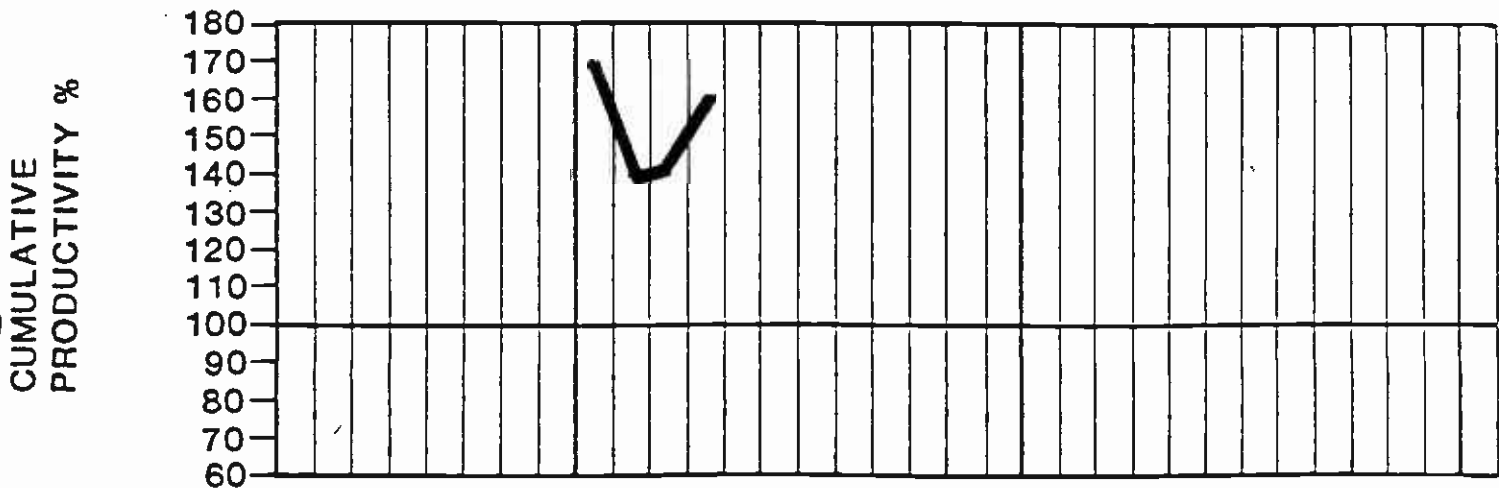
The Section Designer is on schedule.

CONTRACT # A430  
 DESCRIPTION LINE BETWEEN UNIVERSAL CITY  
 & NORTH HOLLYWOOD  
 SECTION DESIGNER PAE/WH/S&W

MRTC	PLAN	----
PROGRESS	ACTUAL	=====
REPORT	FORECAST	.....



MRTC REPORT	PLANNED											
	ACTUAL											
	FORECAST											

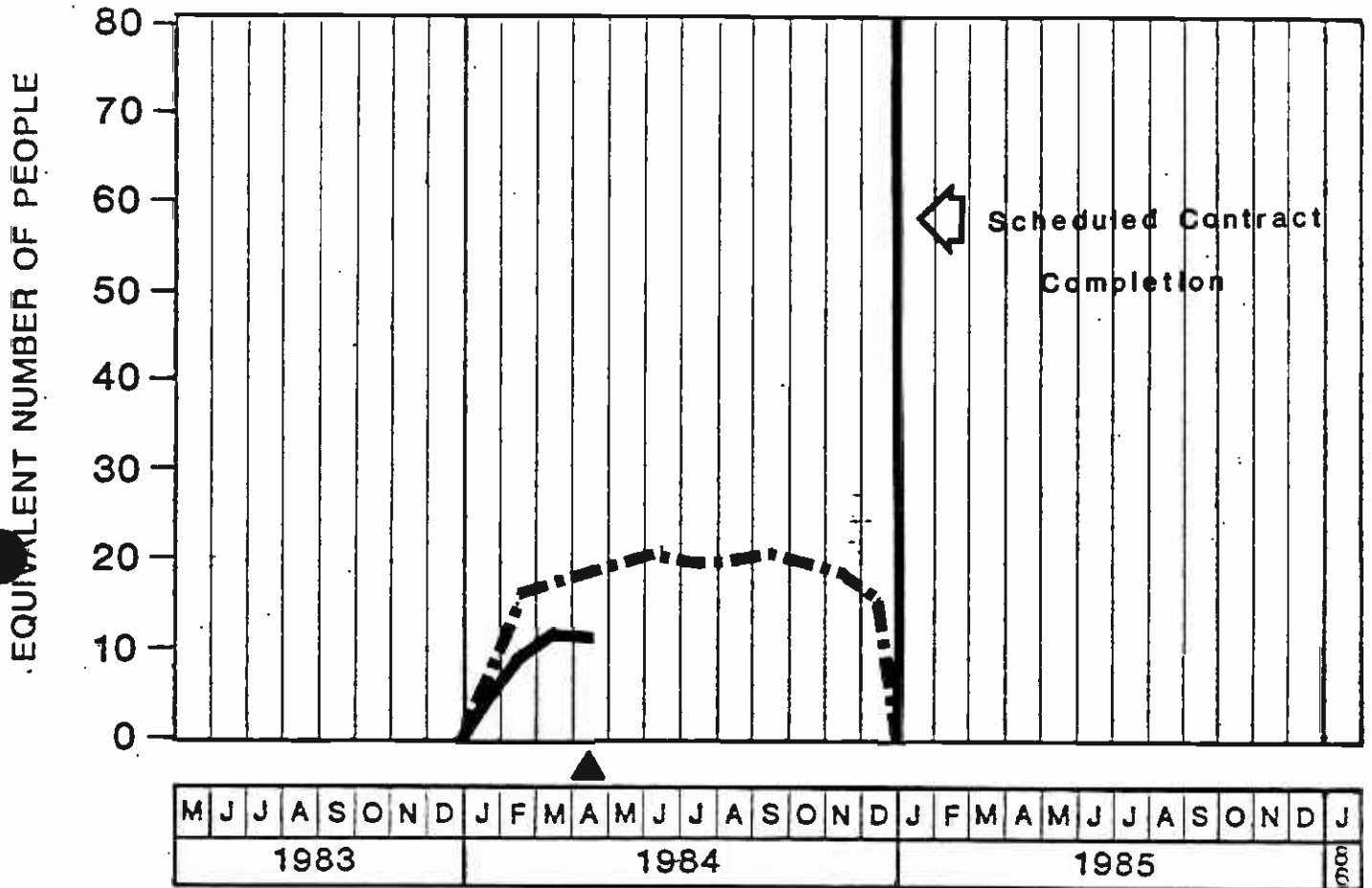


CONTRACT #A430

DESCRIPTION LINE BETWEEN UNIVERSAL CITY & NORTH HOLLYWOOD

SECTION DESIGNER PAE/WH/S&W

### MANPOWER PLAN



PLANNED - - - - -

FORECAST ..... NOT AVAILABLE

ACTUAL - - - - -

RTD METRO RAIL PROJECT  
 C.P.E. PHASE  
 SECTION DESIGNER EVALUATION  
 APRIL 1984

COST ANALYSIS

CONTRACT # - A445 NORTH HOLLYWOOD STATION  
 DESIGN CONTRACTOR - GIBBS/GIBBS

COMMENTS ON MRTC PROGRESS REPORT

- o NO DISCUSSION OF PROBLEM AREAS.
- o NO DISCUSSION OF DECREASE IN FORECAST TO COMPLETION COST (VARIES FROM LAST MONTH).

DATA REPORTED BY MRTC/DESIGN CONSULTANT

	<u>PLAN</u>	<u>FORECAST</u>	<u>ACTUAL TO DATE</u>
% COMPLETE	10	10	8
INCREMENTAL PROGRESS	3	3	1.9
COST	2,142,000	2,157,000	217,000
MANHOURS	45,100	45,400	3,600
CONTRACT DURATION	19	19	4

$$\text{PRODUCTIVITY} = \% \text{ COMPLETE} \times \frac{\text{TOTAL MH FORECAST}}{\text{MHS. SPENT}} = \frac{.08 \times 45,400}{3,600} \times 100 = 100\%$$

$$\text{EARNED COSTS} = \% \text{ COMPLETE} \times \text{TOTAL COST FORECAST} = .08 \times 2,157,000 = \$172,560$$

(CUMULATIVE)

THIS CONTRACTOR, BEING AT 8% COMPLETE, HAS THEORETICALLY EARNED \$172,560.

$$\text{COST PERFORMANCE INDEX} = \frac{\text{EARNED COSTS}}{\text{ACTUAL COSTS SPENT}} = \frac{172,560}{217,000} = \$ .80$$

(CUMULATIVE) - CPI

THE COST PERFORMANCE INDICATES THAT THEORETICALLY WE ARE GETTING \$ .80 WORTH OF WORK FOR EVERY DOLLAR WE SPEND. THIS IS NOT A SATISFACTORY CPI.

$$\text{COST VARIANCE} = \text{ACTUAL \$ SPENT} - \text{EARNED \$} = 217,000 - 172,560 = \$ 44,440$$

(CUMULATIVE)

TO DATE, THIS CONTRACT HAS THEORETICALLY OVERRUN BY \$ 44,440.

COST ANALYSIS  
(CONTINUED)

CONTRACT # - A445 NORTH HOLLYWOOD STATION  
DESIGN CONTRACTOR - GIBBS/GIBBS

PERFORMANCE ASSESSMENT (CONTINUED)

$$\begin{array}{l} \% \text{ SPENT} = \frac{\text{ACTUAL COSTS SPENT}}{\text{FORECAST AT COMPLETION}} = \frac{217,000}{2,157,000} = 10.1\% \\ \text{(CUMULATIVE)} \end{array}$$

THE CONTRACTOR HAS SPENT 10.1% OF THE TOTAL BUDGET VS. HIS PHYSICAL PROGRESS OF 8%.

$$\begin{array}{l} \text{EST. AT COMPLETION (CALCULATED - EAC)} = \frac{\text{FORECAST AT COMPLETION}}{\text{COST PERFORMANCE INDEX}} = \frac{2,157,000}{.80} = \$2,696,250 \end{array}$$

AT THE CURRENT RATE OF COST PERFORMANCE (CPI), WE PROJECT THAT THIS CONTRACT WILL BE COMPLETED AT A COST OF \$2,696,250. THIS REPRESENTS A COST OVERRUN OF \$539,250 OR A 25% DECREASE WHEN COMPARED TO THE PRESENT FORECAST TO COMPLETION COST, BUT WHEN COMPARED TO PLANNED BUDGET THERE IS AN OVERRUN OF \$554,250, OR 26%.

$$\begin{array}{l} \text{TO COMPLETE PERFORMANCE INDEX} = \frac{\text{FORECAST AT COMPLETION} - \text{EARNED COSTS}}{\text{FORECAST AT COMPLETION} - \text{ACTUAL \$ SPENT}} = \frac{2,157,000 - 172,560}{2,157,000 - 217,000} = 1.02\% \end{array}$$

TO COMPLETE PERFORMANCE INDEX INDICATES THAT THE CONTRACTOR MUST WORK AT 102% EFFICIENCY FOR THE BALANCE OF THE CONTRACT TO COME IN AT THE PRESENT FORECAST.

CONCLUSION

THIS CONTRACT IS INDICATING PRODUCTIVITY AT A 100% LEVEL, BUT BEHIND IN PROGRESS.

05/31/84  
PC-14.20<24>

SECTION DESIGNER EVALUATION

SCHEDULE ANALYSIS  
STATUS AS OF: April 30, 1984

DESIGN CONTRACT: A445 North Hollywood Station  
DESIGN SUBCONTRACTOR: Hugh Gibbs & Don Gibbs  
PROJECT MANAGER(TSD/MRTC): Quesada/Challes

AWARD: 06/16/83  
NTP: 12/29/83  
DURATION: 548  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
CONTROL SYSTEM SUBMITTAL	01/11/84	-	02/01/84	-
IN PROG. SUBMITTAL (60%)	09/20/84	09/20/84	-	-
PRE FINAL SUBMITTAL (85%)	01/31/85	01/31/85	-	-
FINAL SUBMITTAL (100%)	05/27/85	05/27/85	-	-
FINAL DESIGN COMPLETE	06/28/85	06/28/85	-	-
TIME OF PERFORMANCE	06/28/85	06/28/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Resolutions regarding the SPTC's Minimum Operating R.O.W. have been evaluated; TSD has directed MRTC to incorporate the railroad's 50-foot right-of-way into the station design, implementing Alternative Site Plan II.

AREAS OF CONCERN:

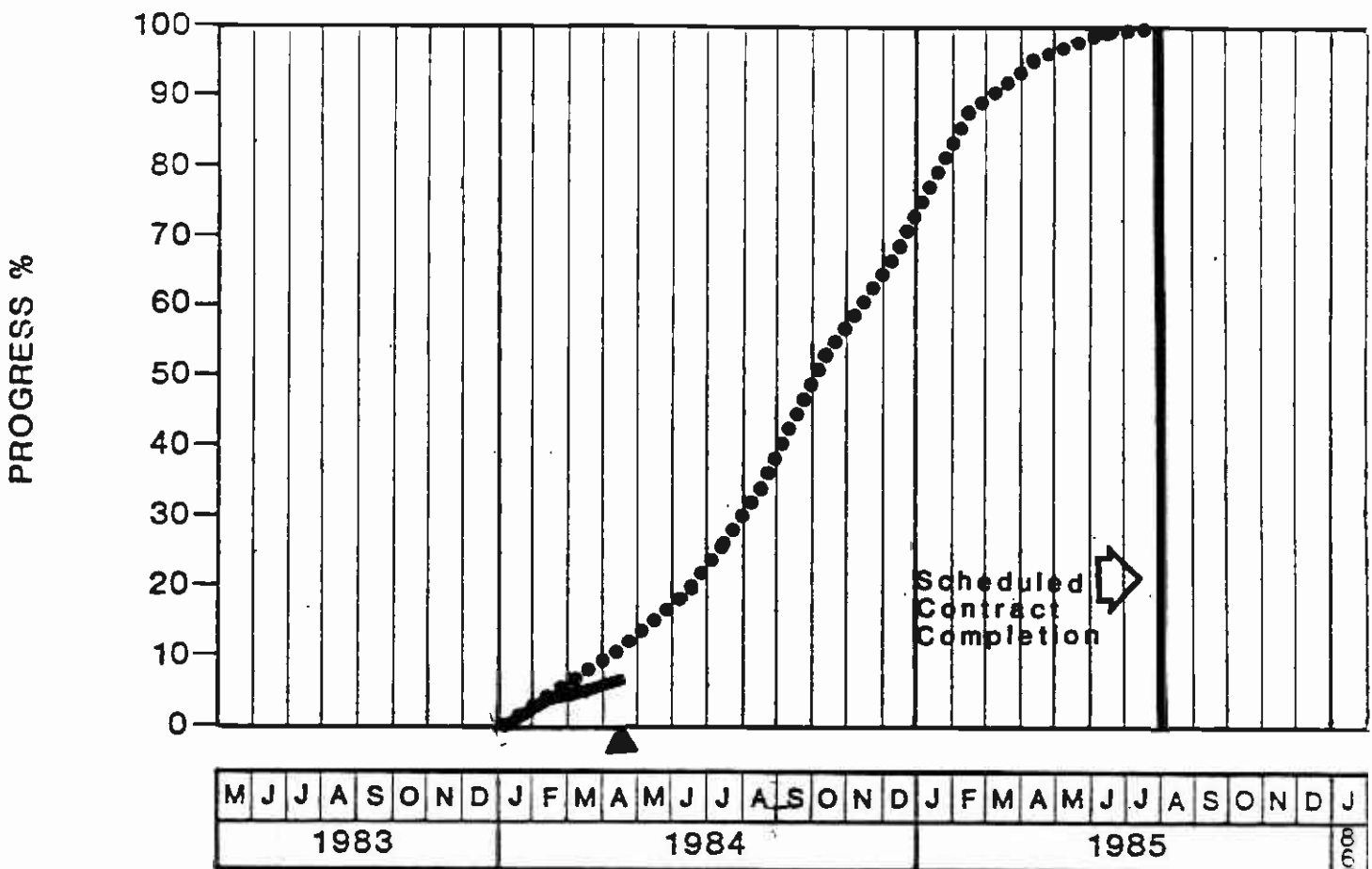
None

COMMENTS:

According to the MRTC Project Manager, the CPN was not updated this period due to manpower problem; update will be next month.

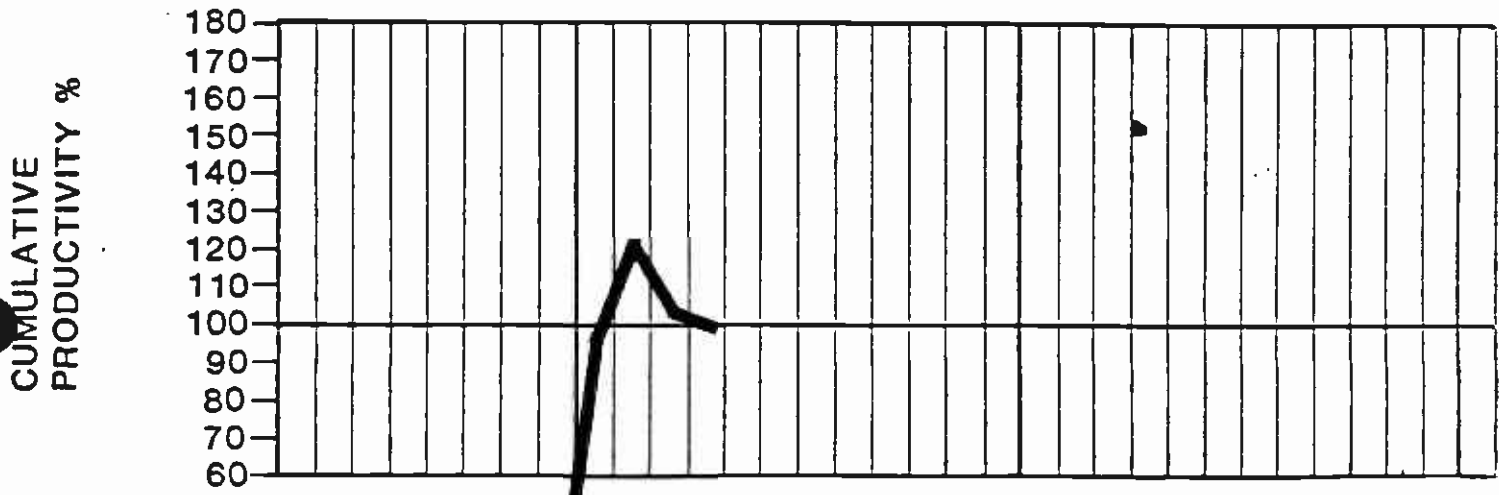
PERFORMANCE ASSESSMENT:

The Contract is on schedule.



M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
1983								1984								1985								000								

BI- WEEKLY REPORT	PLANNED																																		
	ACTUAL							1.5	1.5	4.5	4.5																								
MRTC REPORT	PLANNED	NOT AVAILABLE																																	
	ACTUAL							1.5	4.5	7	6.1	10	8																						
	FORECAST							2	5	7	10	15	20	25	35	45	55	62	70	80	87	93	95	98	99	100									



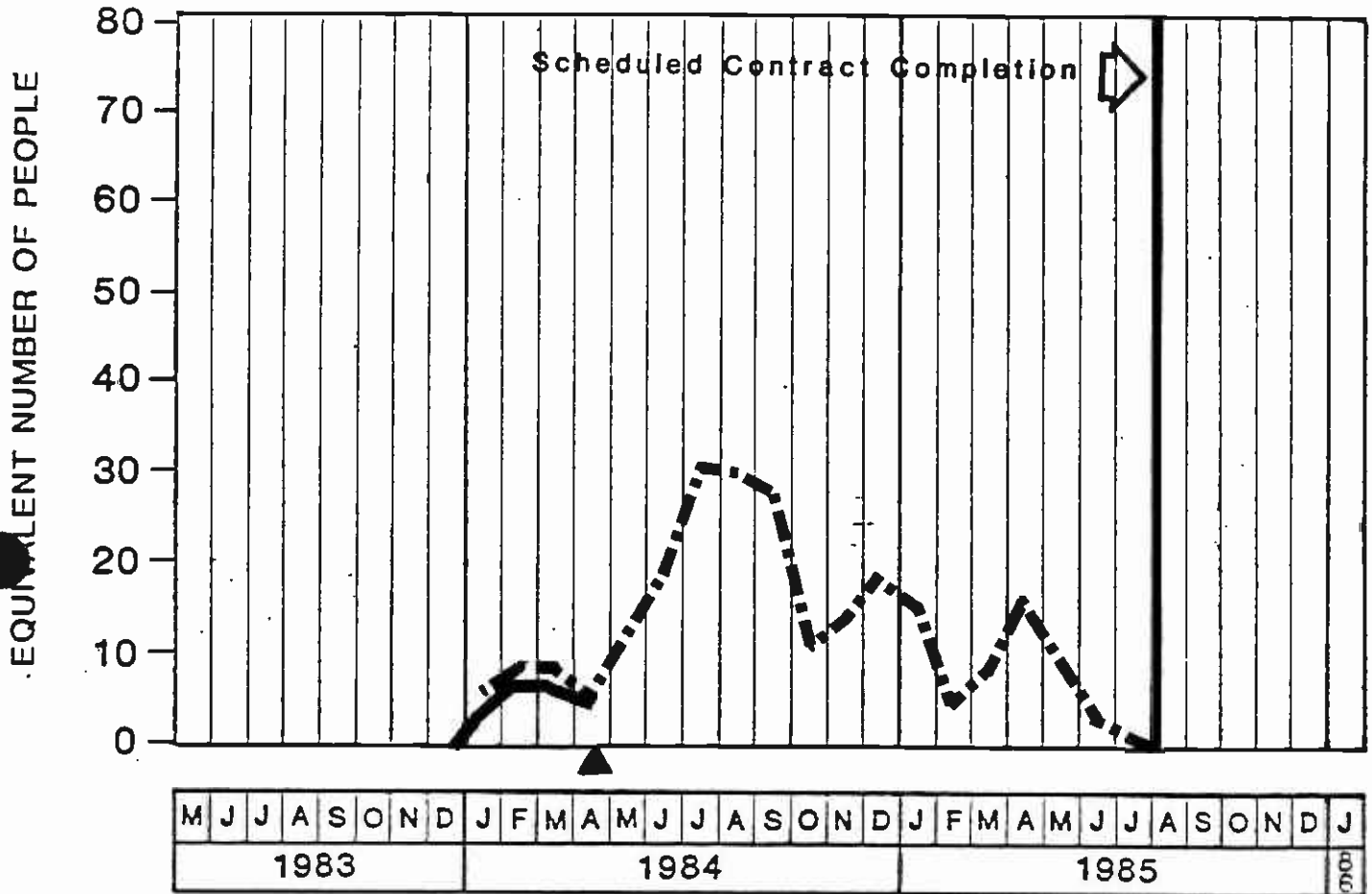


CONTRACT # A445

DESCRIPTION NORTH HOLLYWOOD STATION

SECTION DESIGNER HUGH GIBBS & DONALD GIBBS

### MANPOWER PLAN



PLANNED 

FORECAST 

ACTUAL 

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: Trackwork Procurement and Installation *	START: 02/01/84
SYSTEM RESPONSIBILITY: MRTC In-House Program	COMPLETE: 01/01/86
PROJECT MANAGER (TSD/MRTC): J. Valencia	DURATION: 698 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)				
DESIGN SUBMITTAL (60%)				
DESIGN SUBMITTAL (85%)				
DESIGN SUBMITTAL (100%)				
BID DOCUMENTS				

\* This system description includes the design of the following contracts:

- A610 Mainline Trackwork Installation
- A611 Running Rail Procurement
- A613 Ties Procurement
- A614 Special Trackwork Procurement
- A616 Track Fasteners Procurement
- A617 Rail Welding Service
- A618 Yard Trackwork Installation

Design Schedule status will be shown for each of the contracts listed above in the May Report.

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Problems that may affect the completion of a design subject continue to exist for the following contracts:

- A614 - Finalization of special trackwork in the yard and yard leads. First submittal, 30%, is forecast for 6/15/84.
- A616 - Finalization of noise and vibration and corrosion control requirements. Planned work starts on 5/1/84.
- A618 - Finalization of yard track layout. Planned work starts on 6/1/84.

PERFORMANCE ASSESSMENT:

Planned work is proceeding on schedule. However, if problems identified in Resolutions Section are not resolved, there may be a schedule impact.

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A620 Automatic Train Control	START: 05/02/83
SYSTEM RESPONSIBILITY: MRTC	COMPLETE: 04/26/85
PROJECT MANAGER (TSD/MRTC): M. Becher/M. Burgess	DURATION: 724 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	09/16/83	-	09/16/83	-
DESIGN SUBMITTAL (50/60%)	04/15/84	09/29/84	-	-167
DESIGN SUBMITTAL (85/90%)	12/09/84	12/09/84	-	-
DESIGN SUBMITTAL (100%)	04/19/85	04/19/85	-	-
ADVERTISE	06/07/85	06/07/85	-	-
AWARD	12/06/85	12/06/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Last period's problem is not resolved; MRTC has not received all review comments from SCR TD on the Revised Specifications Section.

AREAS OF CONCERN:

The overdue comments have impacted the industry review and the 50/60% Design Submittal. The Industry Review Submittal is forecast to be May 29, 1984, six weeks later than the scheduled date. The 50/60% Design Submittal has been rescheduled to September 29, 1984; this date is shown as a forecast above.

COMMENTS:

Work is continuing to finalize the specifications to a point suitable for industry review.

PERFORMANCE ASSESSMENT:

The contract is twenty weeks behind the March 1984 schedule dates. The 50/60% submittal date was rescheduled without approval notification. (If the new date is used, the contract is on schedule).



SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A640 Communications  
SYSTEM RESPONSIBILITY: MRTC In-House Program  
PROJECT MANAGER(TSD/MRTC): L.Durrant/C. Fisher

START: 05/02/83  
COMPLETE: 04/26/85  
DURATION: 724  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	06/22/84	06/22/84*	-	-
DESIGN SUBMITTAL (50/60%)	10/30/84	10/30/84	-	-
DESIGN SUBMITTAL (85/90%)	02/05/85	02/05/85	-	-
DESIGN SUBMITTAL (100%)	04/26/85	04/26/85	-	-
ADVERTISE	06/26/85	06/26/85	-	-
AWARD	03/04/86	03/04/86	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Contacted several vendors/users of SCADA System to determine comparative data of cost and advantages.

AREAS OF CONCERN:

None

COMMENTS:

\* The Design Review (30%) scheduled/forecast dates are from the MRTC Design Review Schedule (Dated 5/14/84), confirmed by TSD Engineers to be correct and realistic. The dates shown on the Design Status Report and the MRTC April Progress Report are inconsistent.

PERFORMANCE ASSESSMENT:

Work for this contract is on schedule.

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A650 Passenger Vehicle	START: 05/02/83
SYSTEM RESPONSIBILITY: MRTC In-House Program	COMPLETE: 01/15/85
PROJECT MANAGER(TSD/MRTC): L. Durrant/S. Rodda	DURATION: 623 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	10/03/83	-	10/03/83	-
DESIGN SUBMITTAL (60%)	05/15/84	06/18/84	-	-34
DESIGN SUBMITTAL (85%)	07/31/84	09/08/84	-	-40
DESIGN SUBMITTAL (100%)	11/30/84	01/01/85	-	-32
ADVERTISE	01/15/85	07/01/85	-	-167
AWARD	07/30/85	09/30/85	-	-62

RESOLUTIONS OF LAST PERIODS PROBLEMS:

No problems reported last period.

AREAS OF CONCERN:

The present areas of concern reported in the March report will be discussed in May. The areas of concern include:

1. Line clear for vehicle acceptance testing through Wilshire/Normandie;
2. All systems must be operational at the start of integrated systems testing.

COMMENTS:

The forecast listed above does include two-step procurement of vehicles.

Scheduled Peer Review Meeting will not be taking place.

PERFORMANCE ASSESSMENT:

Planned work is behind schedule. Planned work is 5 weeks behind due to high volume of material to review and not enough personnel to review material. Both TSD and MRTC have been working overtime but the 60% Design Submittal forecast has slipped to 6/18/84.

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A660 Fare Collection	START: 05/02/83
SYSTEM RESPONSIBILITY: MRTC In-House Program	COMPLETE: 01/01/86
PROJECT MANAGER(TSD/MRTC): D. Gary/C. Williams	DURATION: 972 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	03/13/84	-	03/13/84	-
DESIGN SUBMITTAL (50/60%)	11/01/84	11/01/84	-	-
DESIGN SUBMITTAL (85/90%)	06/01/85	06/01/85	-	-
DESIGN SUBMITTAL (100%)	01/02/86	01/02/86	-	-
ADVERTISE	04/01/86	04/01/86	-	-
AWARD	08/29/86	08/29/86	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

There were no problems reported last period.

AREAS OF CONCERN:

There are no areas of concern at this time.

COMMENTS:

Weekly workshop sessions have been scheduled between SCRFD and MRTC for resolution of action items and review comments for the subject contract.

PERFORMANCE ASSESSMENT:

The contract is on schedule.

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A670 Auxiliary Vehicles+ Locomotive	START: 05/02/83
SYSTEM RESPONSIBILITY: MRTC In-House Program	COMPLETE: 12/31/84
PROJECT MANAGER (TSD/MRTC): R. Beuermann/P. Berkley	DURATION: 243 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN SUBMITTAL (60%)	05/01/84	05/15/84	-	-14
DESIGN SUBMITTAL (100%)	10/01/84	10/01/84	-	-
ADVERTISE	01/01/85	01/01/85	-	-
AWARD	05/01/85	05/01/85	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Auxiliary vehicle equipment requirements continue to be established per review action item. The planned completion of this list is early May. All work has stopped on auxiliary vehicle equipment, except for locomotive, until list is finalized.

A schedule analysis will be included for all auxiliary vehicles as requirements are established.

AREAS OF CONCERN:

Responses have been slow coming from prospective manufacturers. Possible reason is that the District is proposing to purchase one (1) locomotive and manufacturers are not very interested in this small volume. This concern has been addressed in previous reports.

COMMENTS:

The 30% Design Review was completed during April.

It is most likely that after the vehicle equipment requirement list is finalized, the projected budget for auxiliary vehicle equipment will exceed the \$1,300,000 estimated in Milestone 11.

PERFORMANCE ASSESSMENT:

Planned work is not on schedule. (In the biweekly Design Status Report, 4/27/84, the Project Manager states "Proceeding according to schedule on locomotive specification. However, the locomotive specifications will not be available until mid-May 1984.")

Planned work is 2 weeks behind due to the rescheduling of the 60% Design Submittal. The 100% Design Submittal remains on schedule.



SYSTEMS EVALUATION

SCHEDULE ANALYSIS  
 STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A710 Escalators	START: 05/02/83
SYSTEM RESPONSIBILITY: MRTC	COMPLETE: 06/01/84
PROJECT MANAGER(TSD/MRTC): M. Becher/A. Racho	DURATION: 396 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	07/15/83	-	07/15/83	-
DESIGN SUBMITTAL (60%)	01/30/84	-	02/08/84	-
DESIGN SUBMITTAL (85%)	04/16/84	05/01/84	-	-16
DESIGN SUBMITTAL (100%)	06/01/84	06/01/84	-	-
ADVERTISE	-	-	-	-
AWARD	-	-	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

No problem areas were reported last period.

AREAS OF CONCERN:

100% Design Submittal scheduled June 1, 1984, will not be met if the design data required to complete the contract drawings is not available. The sole source of this information is the individual station design contract drawings.

COMMENTS:

Design Review for 85% Design Submittal has been slipped to May 1, 1984. The Review Meeting will be held June 6, 1984.

PERFORMANCE ASSESSMENT:

The contract is two weeks behind schedule. Slip in the 85% Design Review Meeting to June 6 indicates the completion of the contract (100% Design Submittal) scheduled June 1, will also slip although it is not indicated above.

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A720 Elevators	START: 05/02/83
SYSTEM RESPONSIBILITY: MRTC	COMPLETE: 07/01/84
PROJECT MANAGER (TSD/MRTC): M. Becher/A. Racho	DURATION: 424 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	07/15/83	-	07/15/83	-
DESIGN SUBMITTAL (75%)	04/12/84	05/16/84	-	-35
DESIGN SUBMITTAL (85/90%)	05/01/84	05/28/84	-	-28
DESIGN SUBMITTAL (100%)	07/01/84	07/01/84	-	-
ADVERTISE	-	-	-	-
AWARD	-	-	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

No problem areas were reported last period.

AREAS OF CONCERN:

The 60% (now 75%) and 85% Design Submittals have been rescheduled. These intermediate submittals have been rescheduled in the past. The rescheduling has occurred as the dates failed to be met. The completion (100% Design Submittal), however, has not been rescheduled or forecast to a later date.

The schedule dates above do not correspond to those rescheduled on the MRTC In-house Design Schedule for April.

COMMENTS:

75% (formerly 60%) Submittal will be issued for review on May 16, 1984.

PERFORMANCE ASSESSMENT:

The contract is five weeks behind the March 1984 schedule dates. Submittal dates have been rescheduled without approval notification. (If these new dates are used, the contract is on schedule.)

SYSTEMS EVALUATION

SCHEDULE ANALYSIS  
 STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A740 Fan Procurement	START: 02/02/84
SYSTEM RESPONSIBILITY: Parsons Brinkerhoff	COMPLETE: 04/30/84
PROJECT MANAGER (TSD/MRTC): M. Becher/K. Sain	DURATION: 87 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN SUBMITTAL (50%)	02/27/84	-	03/06/84	-
	-	-	04/16/84	-
	-	05/17/84	-	-
DESIGN SUBMITTAL (90%)	04/02/84	TBD	-	-
BID DOCUMENTS	04/30/84	TBD	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

The 50% Design Submittal was reviewed and was determined to be an incomplete package. The procurement specifications were not up to required quality and several documents are missing.

COMMENTS:

- . A revised 50% Design Submittal was received April 16, 1984. This submittal is currently under review.
- . Another submittal between the 50% and 90% level will be submitted mid-May.
- . The 90% design submittal date is to be determined.
- . The MRTC Project Manager has not provided a forecast date for the Bid Documents. A design review meeting has been rescheduled for June 7, 1984.

PERFORMANCE ASSESSMENT:

Planned work is four weeks behind schedule. The scheduled 90% Design Submittal has been missed, but the overall schedule impact cannot be determined until forecast dates are provided.

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A750 Tunnel Liners	START: 10/01/83
SYSTEM RESPONSIBILITY: MRTC In-House Program	COMPLETE: 12/15/84
PROJECT MANAGER(TSD/MRTC): J. Crawley/J. Monsees	DURATION: 439 (CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	02/24/84	--	02/24/84	--
DESIGN REVIEW (50/60%)	08/12/84	08/12/84	--	--
DESIGN SUBMITTAL(85/90%)	10/24/84	10/24/84	--	--
DESIGN SUBMITTAL (100%)	12/13/84	12/13/84	--	--
ADVERTISE	--	--	--	--
AWARD	--	--	--	--

RESOLUTIONS OF LAST PERIODS PROBLEMS:

Not yet resolved.

AREAS OF CONCERN:

The search for a membrane, or a material that is impervious to methane and will withstand heavy construction operations, continues.

COMMENTS:

Pending formal award of the contract, Waters Consultants was requested to proceed with Corrosion Control Design Criteria, and the report on corrosion control of steel tunnel liners.

PERFORMANCE ASSESSMENT:

The contract is on schedule.

SYSTEMS EVALUATION

SCHEDULE ANALYSIS

STATUS AS OF: April 30, 1984

SYSTEM DESCRIPTION: A760 Graphics and Signage  
SYSTEM RESPONSIBILITY: MRTC In-House Program  
PROJECT MANAGER (TSD/MRTC): D. Low/P. Smoluchowski

START: 02/22/84  
COMPLETE: 10/01/84  
DURATION: 122  
(CALENDAR DAYS)

MAJOR MILESTONES	SCHEDULED	FORECAST	ACTUAL	VARIANCE
DESIGN REVIEW (30%)	06/18/84	06/18/84	-	-
DESIGN SUBMITTAL (50/60%)	08/15/84	08/15/84	-	-
DESIGN SUBMITTAL (85/90%)	10/15/84	10/15/84	-	-
DESIGN SUBMITTAL (100%)	11/30/84	11/30/84	-	-
ADVERTISE	-	-	-	-
AWARD	-	-	-	-

RESOLUTIONS OF LAST PERIODS PROBLEMS:

There were no problems reported last period.

AREAS OF CONCERN:

None.

COMMENTS:

Alternate sign locations are being studied for prototypical center and end mezzanine stations.

PERFORMANCE ASSESSMENT:

Work is on schedule.