



# LIGHT RAIL PROGRESS REPORT

Central Phoenix/East Valley Light Rail Transit Project







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## 1. Executive Summary

The Central Phoenix/East Valley (CP/EV) Light Rail Transit Project includes the design and construction of a 19.6 mile, double track, Minimum Operable Segment that extends from 19th Avenue near Bethany Home Road in North Central Phoenix through the downtown area to and through the City of Tempe, then crosses into the City of Mesa where the project terminates at Main Street and Sycamore. The track alignment is mostly in-street median and includes 27 passenger stations and eight surface parking lots, seven of which are newly constructed, and one existing lot owned by the City of Tempe near an LRT station site that will be dedicated to transit use at no cost to the Project. An initial fleet of 36 LRVs is part of the Project. The Project also includes an Operations and Maintenance Center (formally known as the Maintenance and Storage Facility) to support the 36 light rail vehicles located South of Washington Street and East of 48th Street in Phoenix. Propulsion power for the LRVs will be delivered by a Traction Electrification System consisting of wayside substations distributing propulsion power through an Overhead Catenary System (OCS). The Project will also include a Signals and Communications System consisting of both wayside and traffic signals. The entity responsible for project delivery, Valley Metro Rail (METRO), is a sub-recipient to the grantee, the City of Phoenix. The Project has a budget of \$1,412,000,000 Billion, with a Revenue Operations Date of December 2008.

The project has surpassed the 60 percent completion stage and construction is over 55 percent complete. Over 109,000 linear feet (20.7 miles) of track has been installed. In April, the Park-n-Ride contracts were advertised for bid. This is the last civil construction package needed to complete the CP/EV project.

Line Section One completed a major milestone in April with the completion of paving on the south side of Camelback Road. This allows a traffic shift and the continuation of guideway construction activities. Line Section Two continues to construct guideway and do underground utility relocates. Line Section Two has placed nearly 5000 ft of guideway since the beginning of the year. Line Section Three also continues to build guideway with over 28,000 linear feet placed to date. Line Section Four has completed three milestones and continues to build guideway from 44<sup>th</sup> Street west. Line Section Five has guideway construction relatively complete from downtown Tempe through Arizona State University and out onto Apache Boulevard. The Station Finishes contract has fifteen station foundations available for construction and has begun steel erection on many of them.

The Operations and Maintenance Facility is substantially complete. The Agency occupies the building and assembly of the vehicles continues with nineteen cars on the property. Both the Traction Power and Signals and Communications contracts continue to make progress. Work has begun on system elements east of the test track. Poles and wire are approaching the north approach to Tempe Town Lake Bridge.

The Community Advisory Board continues to be a great success. Both Line Section One and Line Section Five continued their 100 percent ratings through the month of April.





**METRO  
CONTRACT LOG - APRIL 2007**

ITEM	CONTRACT NUMBER	CONTRACT DESCRIPTION	CONTRACTOR
<b>1. PROGRAM MANAGEMENT &amp; ENGINEERING</b>			
1	LRT-99-001	GEC - DEIS/FEIS/PE	Parsons Brinckerhoff Quade & Douglas
2	LRT-02-001	GEC - Final Design	Parsons Brinckerhoff Quade & Douglas
3	LRT-02-001	GEC - DSDC	Parsons Brinckerhoff Quade & Douglas
4	LRT-98-001-PMC	Project Management Consultant	S.R. Beard & Associates LLC and Parsons Transportation Group, Inc., a Joint Venture
5	LRT-03-005-CAC	Construction Administration Services	Post, Buckley, Schuh & Jernigan, Inc., and PGH Wong Engineering, Inc., a Joint Venture
<b>2. CONSTRUCTION</b>			
6	LRT-03-007-B48	48th Street Bridge Replacement	FNF Construction, Inc.
7	LRT-04-017-MSF	Maintenance & Storage Facility (MSF)	Sundt/Stacy & Witbeck, Joint Venture
8	LRT-04-020-LS1	Line Section 1	Kiewit Western Co
9	LRT-04-019-LS2	Line Section 2	Herzog Contracting Corp
10	LRT-04-021-LS3	Line Section 3	Archer Western Contractors
11	LRT-04-018-LS4	Line Section 4	Sundt/Stacy & Witbeck, Joint Venture
12	LRT-04-022-LS5	Line Section 5	Sundt/Stacy & Witbeck, Joint Venture
13	LRT-05-042-PNR	Park and Rides	<i>Undetermined</i>
14	LRT-04-028-SF	Station Finishes	Archer Western Contractors
15	LRT-04-040-TLB	Town Lake Bridge	PCL Civil Constructors, Inc.
16	LRT-05-036-WPM	Wheel Profiling Machine	Simmons Machine Tool Corp
<b>3. SYSTEM ELEMENTS</b>			
17	LRT-03-001	Light Rail Vehicles (LRV)	Kinkisharyo International, L.L.C. and Mitsui & Co. (U.S.A), Inc., CPEV Joint Venture
18	LRT-04-039-S&C	Signals and Communications	Mass Electric Corp.
19	LRT-04-014-TES	Traction Electrification System	Mass Electric Corp.
20	LRT-06-053-FCS	Fare Collection System	Scheidt & Bachmann USA, Inc.
21	LRT-06-071-LCM	Light Rail Car Mover	Brandt Road Rail Corp
22	LRT-07-076-MSFF	Modular Furniture for MSF	Southwest Business Furnishings
23	LRT-06-060-MMIS	Maintenance Management Information System	Mincom, Inc.
<b>4. PUBLIC ART</b>			
24	02-002-04	LS4 Design Team Artist/Station Artist	Laurie Lundquist
25	02-002-03	LS2 Design Team Artist/Station Artist	Ilan Averbuch
26	02-002-04	LS1 Design Team Artist/Station Artist	Robert Adams
27	02-002-05	LS5 Design Team Artist/Station Artist	Norie Sato/Bill Will
28	02-002-01	LS3 Design Team Artist	Janet Zweig
29	05-041-ART	Bridge Design Team Artist	Buster Simpson
30	02-002-07	LS3 Design Team Artist	Laurie Lundquist
31	02-002-08	LS3 Design Team Artist	Robert Adams
32	02-002-09	44th Street Station Artist	Mona Higuchi
33	02-002-10	38th Street Station Artist	Stuart Keeler/Michael Machnic
34	02-002-11	Central / Roosevelt Station Artist	Peter Richards
35	02-002-12	Central / McDowell Station Artist	Michael Maglich
36	02-002-13	First Street Station Artist	Stephen Farley
37	02-002-14	Third Street Station Artist	Cliff Garten
38	02-002-15	Central Station, Station Artist	Ries Niemi
39	02-002-16	12th Street Station Artist	Victor Zaballa
40	02-002-17	Fifth Street / College Station Artist	Tad Savinar
41	02-002-18	Central / Campbell Station Artist	Al Price
42	02-002-19	Central / Indian School Station Artist	Mary Lucking
43	02-002-20	Central / Osborn Station Artist	Thomas Sayre
44	02-002-21	Central / Thomas Station Artist	Brian Goldbloom
45	02-002-23	Third Street / Mill Station Artist	Catherine Widgery
46	02-002-24	Apache Stations - Lighting Artist	Dan Corson
47	02-002-25	Apache Stations - Cultural Weave Artist	Christine Bourdette
48	02-002-26	Apache Stations - Vertical Objects Artist	Suikang Zhao
49	02-002-27	Apache Stations - Paving Artist	Benson Shaw
50	02-002-28	Longmore Station Artist	Brad Konick
51	02-002-29	19th Avenue / Camelback Station Artist	Josh Garber
52	02-002-30	7th Avenue / Camelback Station Artist	Nubia Owens
53	02-002-31	24th Street Station Artist	Kevin Berry
54	02-002-32	Central / Encanto Station Artist	Jamex & Einar de la Torre



**METRO  
CONTRACT LOG - APRIL 2007**

ITEM	CONTRACT NUMBER	CONTRACT DESCRIPTION	CONTRACTOR
<b>5. MISC. CONSTRUCTION &amp; SERVICES</b>			
55	LRT-05-046-ERS	Environmental Remediation Service	Environmental Response Inc
56	LRT-04-031-PCS	Power Consulting Services	RW Beck
57	LRT-06-052-MF	Modular Furniture	Facilitec, Inc.
58	LRT-06-065-TCS	Telecom Carrier Services	Time Warner Telecom
59	LRT-06-057-WLI	WAN/LAN and IPT Voice Sys Equipment	Calence, Inc.
60	LRT-04-034-SPC	Strategic Planning Consulting Services	Davis Consulting
61	LRT-05-045-DCS	Document Control Services	LKG-CMC, Inc
62	LRT-05-037-ACS	Audit Consulting Services	Clifton Gunderson LLP
63	LRT-05-038-RMS	Risk Management Services	Ashton Tiffany, LLC
64	LRT-06-069-SSC	Safety & Security Certification Services	Booz Allen Hamilton, Inc.
65	LRT-06-067-ITS	Info Technology-Office Network Support	World Wide Technology, Inc.
66	LRT-07-082-TCS	Telecommunications Services for MSF	Qwest Communications
67	LRT-07-073-TS	Transportation Services	Alternate Concepts, Inc.
68	LRT-07-086-MSFM	Interim Maintenance Services for MSF	DMS Facility Services
<b>6. OWNER FURNISHED MATERIALS</b>			
69	LRT-04-009-MP1	Rail (MP1)	Progress Rail Corporation
70	LRT-04-010-MP2	Concrete Crossties (MP2)	CXT Inc
71	LRT-04-030-MP5	Ballasted Special Trackwork (MP5)	VAE Nortrak North America Inc
72	LRT-04-032-MP8	Girder Rail (MP8)	VAE Nortrak North America Inc
73	LRT-04-033-MP9	Girder Rail Special Trackwork (MP9)	VAE Nortrak North America Inc
74	LRT-04-015-MP3	Traffic Signal Hardware (MP3)	Various
75	LRT-06-072-SE	Shop Equipment for Maintenance Facility	Wissota Supply Company, Inc
76	LRT-07-078-MLE	Spray Paint Booth Manlifts at MSF	MGM Equipment Source
<b>7. FUTURE LIGHT RAIL EXTENSIONS</b>			
77	LRT-06-050-DCS	Design Criteria & Standards	Stantec Consulting
78	LRT-06-055-PSS	Planning Support Services	HDR Engineering, Inc.
79	LRT-07-077-PCES	Planning, Conceptual Engineering & Environmental Studies for Future Light Rail Extensions - Mesa-Tempe	HDR / S.R. Beard & Associates



## **2. Cost Overview**

### **Federal 5309 Project**

The project budget for the Federal 5309 program is \$1,412,125,346. Known pending and executed change orders are valued at \$34,501,139 of the available \$72,904,121 planned contingency.

Including Project Reserve, this leaves \$57,286,811 of contingency funds available to the project.

The project is 62.2 percent complete. Construction is 55.6 percent complete.

Since the last reporting period, the contingency for facilities decreased by \$749,857, and systems decreased by \$129,999.

### **Program Management and Administration**

Forecast is within budget.

### **Program Management Consultant**

Staffing plan for fiscal years 2008 and 2009 is within the overall forecast of this contract unit.

### **City Administration**

Forecasts are per agreements with the cities.

### **Right of Way Acquisition**

No forecast change this period.

### **PE/FEIS Engineering**

Activity is complete.

### **Engineering**

No forecast change this period.

### **Owner Furnished Equipment/Materials**

Forecasts are within budget.

### **Light Rail Vehicles**

Contingency appears to be sufficient to fund the work remaining.

### **Facilities**

Facilities work is 56.6 percent complete. Executed and pending change orders are expected to utilize \$18,500,000 of the \$32,600,000 available contingency. Additional expected change orders for required acceleration, additional work and expected requests for equitable adjustment are challenging the available balance of contingency.



## **Systems**

Systems work is 41.7 percent complete. Remaining contingency will be required for unforeseen conditions and to accelerate the systems work.

## **Construction Administration Services**

Budget and forecast for work through fiscal year 2007 are in sync. Additional forecast will be obtained on a yearly basis.

## **Testing and Startup**

Forecast continues to show an under run to the budget.

## **Art Program**

Forecast appears sufficient to complete the work.

## **Unallocated Design Contingency**

Budget was utilized to fund variances between bid amounts and original budgets.

## **Project Reserve**

The budget and forecast remains at \$9,500,000 and \$18,900,000, respectively.

## **Financing Costs**

The budget is \$158,900,000 and the last forecast was \$140,000,000. The forecast has been reduced to \$128,000,000 by lowering the Phoenix forecast of finance costs.

## **Concurrent Non Project Activities Project**

The budget for Concurrent Non Project Activities is \$103,012,860, based on the January 2007 METRO approved amount.

During the reporting period, one new CNPA was initiated and four change orders were initiated for a net credit of \$19,845 to the entire CNPA budget. The forecasts for ASU, City of Mesa, Phoenix Streets, and Phoenix Aviation CNPA projects were unchanged. The City of Tempe added one new CNPA element for a total cost of \$8,243. Tempe's total forecast was reduced by \$450,383 based on the latest estimates provided by contractors. Phoenix Public Transit's CNPA project forecast increased by \$1,765,857. This increase is due to escalating right of way costs for the 19<sup>th</sup> Avenue and Camelback Transit Centers and the Large Vehicle Access project along Washington and Jefferson Streets. Phoenix Water Services had four change orders processed for a net decrease in forecast of \$28,088; Line Section 2 had two change orders processed for a credit of \$68,088 and Line Section 3 had two change orders processed for a total cost of \$40,000.

**Valley Metro Rail Program Control  
CP/EV LRT Project  
Project Budget Status  
Federal 5309 Project**

2007\_04

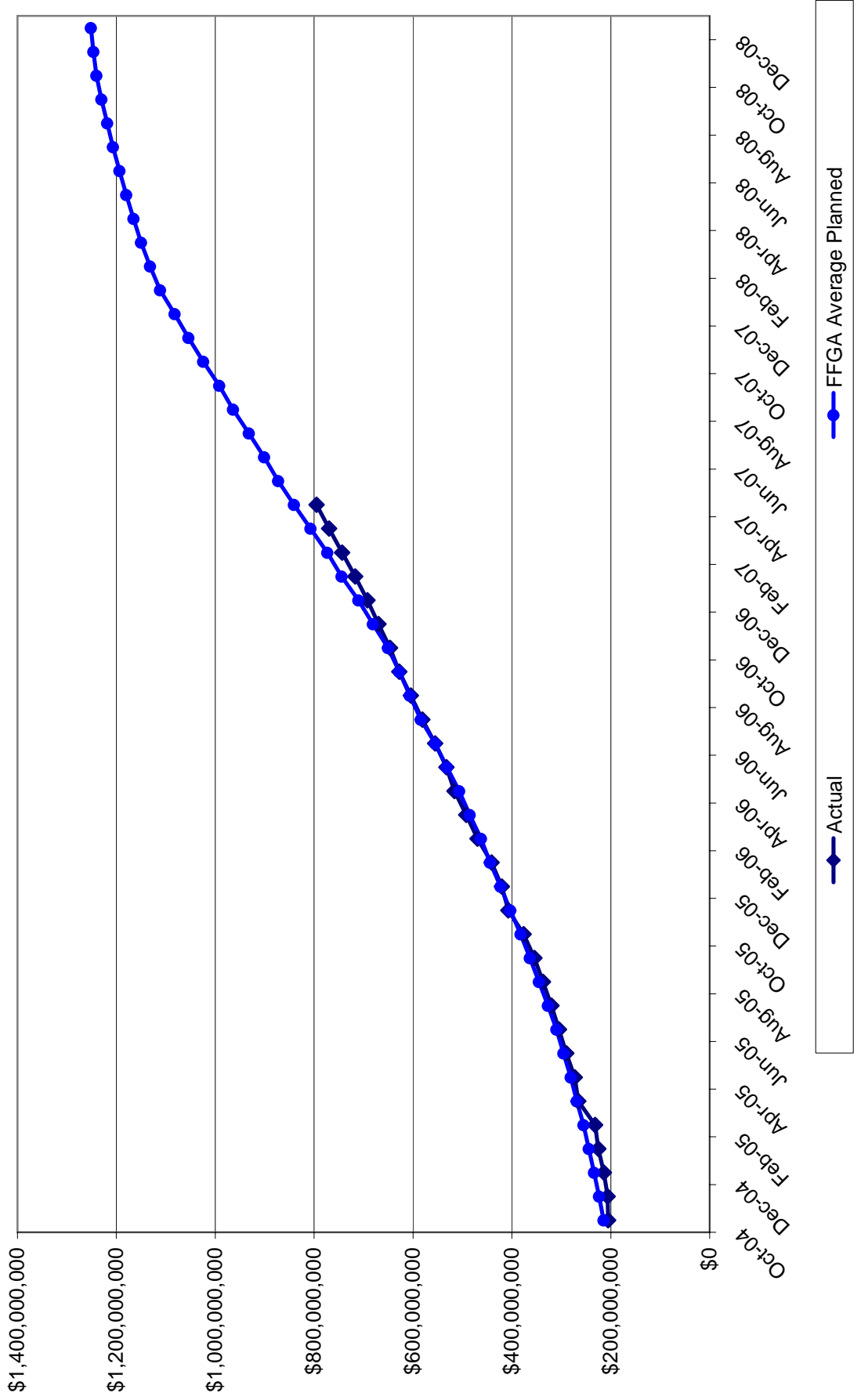
Element	Description	FFGA Attachment 3	Board Revised Budget	Current Actual \$ (To Date)	Forecast	Variance
50	LS1 19th Ave/Bethany - Camelback/Central	\$27,130,856	\$38,406,469	\$12,929,236	\$38,535,228	(\$128,759)
51	LS2 Camelback/Central - McDowell Road	\$38,004,059	\$50,214,171	\$16,994,791	\$50,294,535	(\$80,364)
52	LS3 McDowell Road - 28th Street	\$63,981,654	\$80,798,352	\$45,988,025	\$81,021,172	(\$222,820)
53	LS4 28th Street - N Approach to Town Lake	\$46,622,020	\$50,837,124	\$37,830,866	\$51,287,047	(\$449,923)
54	LS5 1st Street - Sycamore	\$49,680,435	\$69,568,159	\$45,806,624	\$69,626,293	(\$58,134)
55	Station Finishes	\$38,701,950	\$52,248,188	\$10,410,962	\$52,272,440	(\$24,252)
56	Park and Ride Facilities	\$15,104,339	\$15,104,339	\$0	\$20,907,699	(\$5,803,360)
57	Miscellaneous Construction	\$7,505,200	\$4,501,200	\$0	\$750,000	\$3,751,200
5K	Archaeological Investigations/Hazardous Material Removal	\$0	\$5,182,048	\$4,060,623	\$6,604,170	(\$1,422,122)
58	MSF Construction/Equipment Installation	\$57,637,721	\$64,474,643	\$64,219,078	\$64,184,272	\$290,371
5G	MSF Underfloor Wheel Profiling System	\$0	\$980,107	\$686,075	\$980,107	\$0
59	48th Street Bridge Restoration	\$2,014,013	\$2,824,232	\$2,824,232	\$2,824,232	\$0
5A	Town Lake Bridge	\$15,529,600	\$21,884,369	\$21,759,752	\$21,884,369	\$0
5B	Prior Rights Utility Relocations	\$22,938,000	\$25,086,166	\$24,116,279	\$31,363,960	(\$6,277,794)
81	Contingency	\$37,491,841	\$15,208,996	\$0	\$16,124,427	(\$915,431)
	<b>Facilities</b>	<b>\$422,341,688</b>	<b>\$497,318,563</b>	<b>\$287,626,543</b>	<b>\$508,659,951</b>	<b>(\$11,341,388)</b>
4A	Rail Procurement	\$1,306,200	\$1,271,080	\$1,251,101	\$1,271,080	\$0
4B	Concrete Crosstie Procurement	\$900,000	\$751,492	\$718,285	\$751,492	\$0
4C	Traffic Signal Hardware	\$8,060,100	\$8,060,100	\$6,831,766	\$8,060,100	\$0
4D	Ballasted Special Trackwork Procurement	\$2,532,414	\$2,291,497	\$2,253,875	\$2,291,497	\$0
4E	Crossing Panel Procurement	\$380,100	\$360,096	\$0	\$0	\$360,096
4F	Girder Rail Procurement	\$15,079,742	\$14,726,085	\$14,497,970	\$14,726,085	\$0
4G	Girder Rail Special Trackwork Procurement	\$0	\$5,712,656	\$2,642,625	\$5,712,656	\$0
81	Contingency	\$1,412,863	\$666,194	\$0	\$647,194	\$19,000
	<b>Owner Furnished Materials/Equipment</b>	<b>\$29,671,419</b>	<b>\$33,839,200</b>	<b>\$28,195,622</b>	<b>\$33,460,104</b>	<b>\$379,096</b>
5D	Automated Fare Collection System	\$10,755,800	\$7,100,012	\$0	\$7,101,612	(\$1,600)
5E	Traction Power Substations/Overhead Catenary System	\$62,141,100	\$57,236,763	\$29,908,043	\$57,710,093	(\$473,330)
5F	Communications/Signals	\$38,220,002	\$38,656,123	\$15,318,250	\$38,709,578	(\$53,455)
81	Contingency	\$8,674,000	\$4,868,414	\$0	\$4,340,029	\$528,385
	<b>Systems</b>	<b>\$119,790,902</b>	<b>\$107,861,312</b>	<b>\$45,226,293</b>	<b>\$107,861,312</b>	<b>\$0</b>
	<b>Sub Total, Construction</b>	<b>\$571,804,009</b>	<b>\$639,019,075</b>	<b>\$361,048,458</b>	<b>\$649,981,367</b>	<b>(\$10,962,292)</b>
4K	Vehicle Contract	\$115,501,823	\$116,875,456	\$39,866,303	\$116,875,456	\$0
4N	LRT Vehicle Contract Contingency	\$5,775,001	\$2,547,109	\$0	\$2,547,109	\$0
	<b>LRT Vehicles</b>	<b>\$121,276,824</b>	<b>\$119,422,565</b>	<b>\$39,866,303</b>	<b>\$119,422,565</b>	<b>\$0</b>
22	ROW Acquisition	\$116,214,150	\$116,786,065	\$125,327,939	\$134,000,000	(\$17,213,935)
23	ROW Contingency	\$20,081,000	\$19,509,087	\$0	\$0	\$19,509,087
20	<b>ROW</b>	<b>\$136,295,150</b>	<b>\$136,295,152</b>	<b>\$125,327,939</b>	<b>\$134,000,000</b>	<b>\$2,295,152</b>

**Valley Metro Rail Program Control  
CP/EV LRT Project  
Project Budget Status  
Federal 5309 Project**

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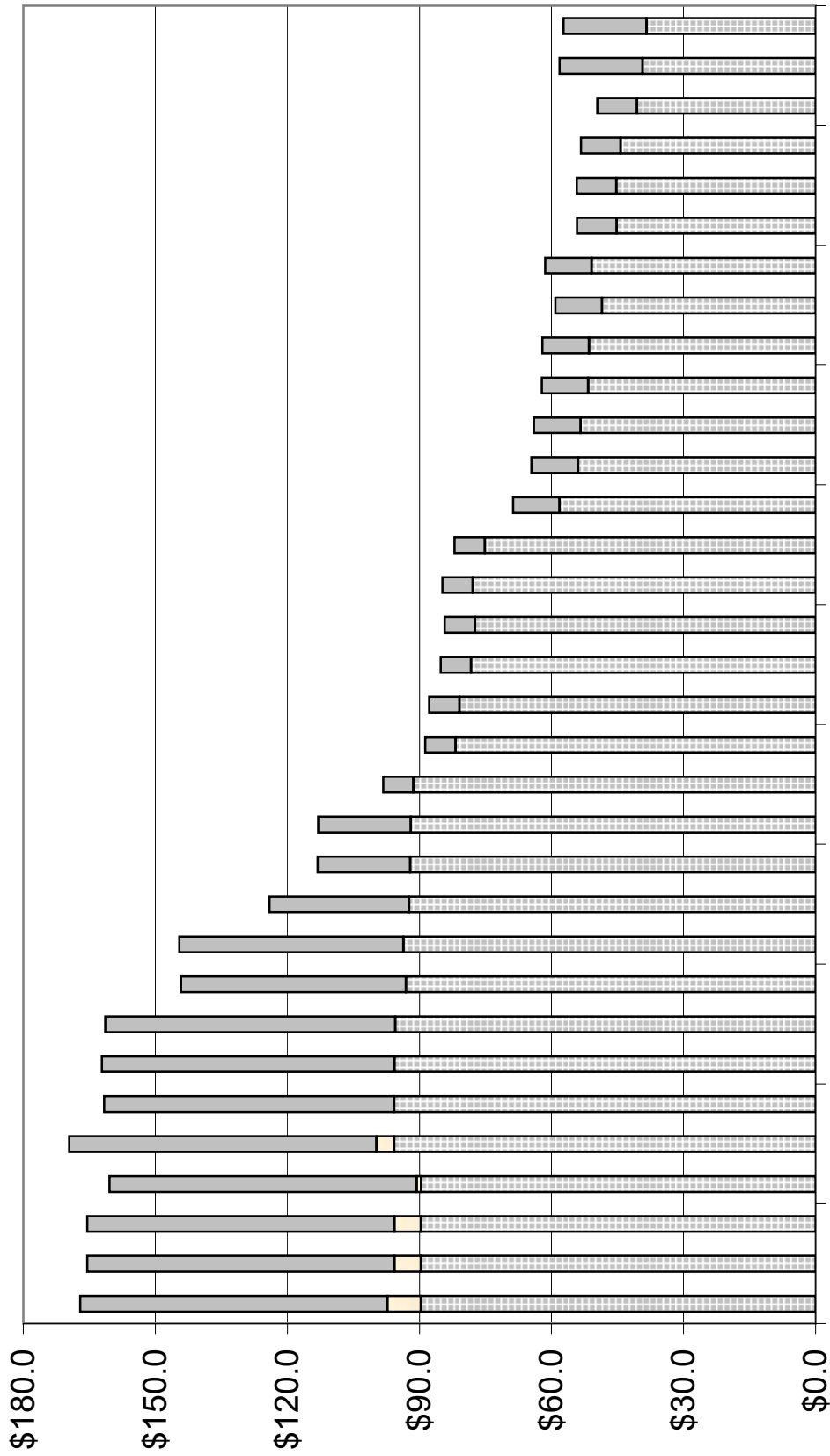
Element	Description	FFGA Attachment 3	Board Revised Budget	Current Actual \$ (To Date)	Forecast	Variance
<b>30</b>	<b>PE/FEIS Engineering</b>	<b>\$25,054,938</b>	<b>\$25,054,938</b>	<b>\$25,054,938</b>	<b>\$25,054,938</b>	<b>\$0</b>
31	Engineering	\$76,780,935	\$76,346,254	\$75,980,698	\$76,678,480	(\$332,226)
4L	Vehicle Engineering	\$5,432,358	\$6,255,358	\$5,786,402	\$6,255,358	\$0
20	ROW Engineering	\$1,016,370	\$1,321,163	\$1,386,172	\$1,386,172	(\$65,009)
32	Design Services During Construction	\$14,160,426	\$17,680,180	\$15,841,119	\$23,442,984	(\$5,762,804)
33	Engineering Contingency	\$0	\$0	\$0	\$0	\$0
34	DSDC Contingency	\$0	\$0	\$0	\$0	\$0
	<b>Engineering</b>	<b>\$97,390,089</b>	<b>\$101,602,955</b>	<b>\$98,994,391</b>	<b>\$107,762,994</b>	<b>(\$6,160,039)</b>
						<b>\$0</b>
60	Construction Administration Services	\$37,759,127	\$41,778,693	\$34,182,293	\$54,515,289	(\$12,736,596)
61	CAC Contingency	\$15,244,622	\$0	\$0	\$0	\$0
	<b>Construction Administration Services</b>	<b>\$53,003,749</b>	<b>\$41,778,693</b>	<b>\$34,182,293</b>	<b>\$54,515,289</b>	<b>(\$12,736,596)</b>
10	PE Administrative/Management Costs	\$4,363,526	\$4,363,526	\$4,363,526	\$4,363,526	\$0
11	Administrative/Management - VMR	\$43,915,047	\$44,228,316	\$28,206,148	\$43,894,975	\$333,341
62	Construction Administration Services - VMR	\$1,697,232	\$3,087,589	\$964,236	\$1,779,589	\$1,308,000
67	CAB Program	\$0	\$2,500,000	\$1,403,004	\$2,500,000	\$0
21	Administrative ROW Costs	\$696,712	\$696,712	\$581,822	\$696,712	\$0
76	Administrative/Management Art Program Costs	\$414,632	\$414,632	\$0	\$414,632	\$0
16	Administrative/Management - ADOT	\$420,000	\$930,000	\$510,365	\$1,269,053	(\$339,053)
17	Agency Insurance Cost	\$7,000,000	\$7,000,000	\$5,268,637	\$7,000,000	\$0
18	Administrative/Management Contingency	\$0	\$5,388,523	\$0	\$4,608,212	\$780,311
	<b>Program Management</b>	<b>\$58,507,149</b>	<b>\$68,609,298</b>	<b>\$41,297,738</b>	<b>\$66,526,699</b>	<b>\$2,082,599</b>
10	PE Administrative/Management Costs	\$12,832,472	\$12,832,472	\$12,832,472	\$12,832,472	\$0
21	Administrative ROW Costs	\$1,016,571	\$1,016,571	\$793,865	\$981,934	\$34,637
76	Administrative/Management Art Program Costs	\$549,061	\$549,061	\$234,041	\$501,189	\$47,872
12	Administrative/Management - PMC	\$32,736,326	\$32,736,326	\$26,430,544	\$33,684,591	(\$948,265)
4M	Administrative Vehicle Costs	\$1,337,322	\$1,337,322	\$561,908	\$1,337,322	\$0
63	Construction Administration Services - PMC	\$4,581,527	\$5,081,527	\$2,539,229	\$4,215,771	\$865,756
	<b>Program Management Consultant</b>	<b>\$53,053,279</b>	<b>\$53,553,279</b>	<b>\$43,392,059</b>	<b>\$53,553,279</b>	<b>\$0</b>
10	PE Administrative/Management Costs	\$3,158,439	\$3,158,439	\$3,158,439	\$3,158,439	\$0
13	Administrative/Management - COP	\$2,986,000	\$5,448,000	\$5,667,906	\$5,820,855	(\$372,855)
64	Construction Administration Services - COP	\$8,347,000	\$5,885,000	\$4,957,844	\$5,512,145	\$372,855
14	Administrative/Management - COT	\$6,797,000	\$6,797,000	\$5,146,515	\$6,797,000	\$0
15	Administrative/Management - COM	\$897,000	\$897,000	\$263,164	\$897,000	\$0
	<b>City Administration</b>	<b>\$22,185,439</b>	<b>\$22,185,439</b>	<b>\$19,193,868</b>	<b>\$22,185,439</b>	<b>\$0</b>
75	Public Art Contracts	\$5,284,133	\$6,080,177	\$3,040,466	\$6,080,177	\$0
77	Art Program Contingency	\$999,000	\$202,956	\$0	\$202,956	\$0
	<b>Public Art</b>	<b>\$6,283,133</b>	<b>\$6,283,133</b>	<b>\$3,040,466</b>	<b>\$6,283,133</b>	<b>\$0</b>
<b>70</b>	<b>Start-Up and Testing</b>	<b>\$31,000,000</b>	<b>\$30,000,000</b>	<b>\$3,764,074</b>	<b>\$26,000,000</b>	<b>\$4,000,000</b>
<b>80</b>	<b>Unallocated Design Contingency</b>	<b>\$7,575,241</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>85</b>	<b>Project Reserve</b>	<b>\$69,829,000</b>	<b>\$9,453,473</b>	<b>\$0</b>	<b>\$18,883,829</b>	<b>(\$9,430,356)</b>
<b>SUBTOTAL</b>		<b>\$1,253,258,000</b>	<b>\$1,253,258,000</b>	<b>\$795,162,527</b>	<b>\$1,284,169,532</b>	<b>(\$30,911,532)</b>
<b>90</b>	<b>Financing Costs</b>	<b>\$158,867,346</b>	<b>\$158,867,346</b>	<b>\$5,717,401</b>	<b>\$127,955,814</b>	<b>\$30,911,532</b>
<b>TOTAL CP/EV PROJECT</b>		<b>\$1,412,125,346</b>	<b>\$1,412,125,346</b>	<b>\$800,879,928</b>	<b>\$1,412,125,346</b>	<b>\$0</b>

### Plan versus Actual Costs



# CP/EV LRT Contingency Drawdown

\$ Million



Aug-04 Nov-04 Feb-05 May-05 Aug-05 Nov-05 Feb-06 May-06 Aug-06 Nov-06 Feb-07

Change Order Contingency Unallocated Design Contingency Project Reserve

Valley Metro Rail Program Control  
 CPIEV LRT Project  
 Project Budget Status  
 CNPA Project

Element	Description	Board Approved Total	Revised Budget/Estimate	Current Actual \$ (To Date)	Forecast	Variance
A1	Bus Bays (LS2)	\$963,403	\$984,756	\$502,419	\$1,013,138	(\$28,382)
A2	Phoenix Art Museum Left Turn Signal	\$99,083	\$108,770	\$0	\$99,083	\$9,687
A5	19th/Montebello Transit Center (SF)	\$5,555,929	\$6,398,495	\$4,958,363	\$6,909,954	(\$511,459)
A6	117 Central/Camelback Transit Center (SF)	\$7,022,524	\$6,914,992	\$2,495,924	\$5,540,529	\$1,374,463
A7	44th Street/Washington Transit Center Real Estate	\$4,900,509	\$4,649,580	\$4,378,682	\$4,872,992	(\$223,412)
B1	Washington Street Bike Lane (LS4)	\$930,293	\$912,714	\$521,621	\$924,838	(\$12,124)
F4	Civic Plaza Track Support System	\$2,595,811	\$2,297,669	\$269,000	\$401,289	\$1,896,380
F5	Additional Water Services to the Pueblo Grande Museum - LS4	\$89,285	\$89,285	\$62,262	\$89,285	(\$0)
F6	Central/Camelback Bus Bays Relocation	\$192,720	\$193,065	\$0	\$193,065	\$0
F7	COP Landscape Irrigation Restoration Central Ave	\$101,414	\$90,750	\$41,971	\$113,153	(\$22,403)
H2	Fiber Optic COP	\$602,233	\$476,896	\$75,568	\$650,593	(\$173,697)
J6	Washington/Jefferson 16th to 26th Street, Property Access	\$2,628,002	\$3,845,895	\$2,601,865	\$3,439,126	\$406,769
K7	11th Street Loop Track	\$4,377,606	\$4,352,606	\$97,433	\$4,352,606	\$0
	<b>Sub Total Public Transit Department</b>	<b>\$30,058,812</b>	<b>\$31,315,473</b>	<b>\$16,005,108</b>	<b>\$28,599,651</b>	<b>\$2,715,822</b>
A3	6th Lane - Camelback (LS1)	\$9,820,210	\$9,883,190	\$7,660,740	\$8,954,921	\$928,269
D1	Additional Street/Pedestrian Lighting (LS3)	\$509,602	\$509,602	\$383,141	\$509,602	\$0
E3	Seal Coat versus Rubber Overlay (LS 1 )	\$264,342	\$264,342	\$17,104	\$264,342	\$0
E4	Seal Coat versus Rubber Overlay (LS 3)	\$1,479,814	\$1,485,876	\$90,509	\$1,482,845	\$3,031
E5	Seal Coat versus Rubber Overlay (LS 4)	\$430,896	\$430,896	\$10,832	\$430,896	\$0
K3	Red Light Enforcement	\$79,667	\$61,067	\$28,140	\$79,667	(\$18,600)
	<b>Sub Total Streets Department</b>	<b>\$12,584,531</b>	<b>\$12,634,973</b>	<b>\$8,190,466</b>	<b>\$11,722,273</b>	<b>\$912,700</b>
A7	44th Street/Washington Transit Center (SF)	\$2,822,429	\$2,821,531	\$1,347,817	\$2,821,531	\$0
C6	APM Utility Connections	\$22,997	\$22,997	\$19,440	\$22,997	\$0
D2	44th Street Station People Mover Foundation (LS4)	\$783,003	\$783,003	\$606,608	\$781,038	\$1,965
D6	People Mover - APS Duct Bank @ 40th Place	\$214,035	\$216,000	\$115,997	\$216,000	\$0
E9	10 <sup>th</sup> Water Line at 42nd/Washington LS 4	\$61,269	\$61,269	\$47,020	\$61,269	\$0
F3	Archaeological/Hazardous Material Testing (CAC)	\$60,000	\$60,000	\$54,844	\$60,000	\$0
	<b>Sub Total Aviation Department</b>	<b>\$3,963,733</b>	<b>\$3,964,800</b>	<b>\$2,191,726</b>	<b>\$3,962,835</b>	<b>\$1,965</b>
B3	LS 1 Water/Sanitary Sewer	\$9,887,790	\$9,718,406	\$2,654,162	\$9,691,601	\$26,805
B4	LS 2 Water/Sanitary Sewer	\$6,255,348	\$5,616,405	\$2,334,169	\$5,599,228	\$17,177
B5	LS 3 Water/Sanitary Sewer	\$15,367,099	\$14,909,373	\$10,349,781	\$14,965,755	(\$56,382)
B6	LS 4 Water/Sanitary Sewer	\$5,325,563	\$5,927,940	\$5,380,767	\$5,940,876	(\$12,936)
B7	Water and Sanitary Sewer Lines - 48th St. Bridge Replacement Contract	\$415,420	\$155,767	\$155,767	\$155,767	\$0
J1	Catholic Protection for Waterlines LS1	\$1,099,400	\$739,855	\$100,975	\$739,855	\$0
J2	Catholic Protection for Waterlines LS2	\$1,094,162	\$979,408	\$142,216	\$1,083,586	(\$104,178)
J3	Catholic Protection for Waterlines LS3	\$29,192	\$0	\$0	\$29,192	\$0
J5	Catholic Protection for Waterlines LS4	\$350,000	\$435,620	\$85,620	\$435,620	\$0
	<b>Sub Total Water Services Department</b>	<b>\$39,823,994</b>	<b>\$38,482,774</b>	<b>\$21,203,457</b>	<b>\$38,641,480</b>	<b>(\$158,706)</b>
	<b>Total - Phoenix</b>	<b>\$86,431,070</b>	<b>\$86,398,020</b>	<b>\$47,590,757</b>	<b>\$82,926,239</b>	<b>\$3,471,781</b>

Valley Metro Rail Program Control  
 C/PEV LRT Project  
 Project Budget Status  
 CNPA Project

Element	Description	Board Approved Total	Revised Budget/Estimate	Current Actual \$ (To Date)	Forecast	Variance
A8	5th/College Transit Center	\$500,000	\$752,738	\$658,992	\$759,682	(\$6,944)
AA	COT SRP Prior Rights TC Relocation	\$244,080	\$235,400	\$0	\$235,400	\$0
B8	Terrace / Apache Waterline Coordination (Design Only)	\$54,639	\$37,999	\$35,287	\$54,534	(\$16,535)
C1	Additional Communications Conduits	\$32,499	\$30,747	\$24,271	\$30,747	\$0
C2	COT ASU Pedestrian Signal	\$114,338	\$122,000	\$55,976	\$122,000	\$0
C7	Parking Facility 5th/Farmer	\$110,701	\$116,990	\$110,701	\$116,990	\$0
C8	COT Waterline @ Cremery Route	\$94,081	\$94,081	\$67,264	\$94,081	\$0
D4	COT Additional Street Lighting (LS5)	\$345,014	\$345,014	\$221,597	\$345,014	\$0
D7	COT Additional Conduit @ McClintock/Apache	\$0	\$7,990	\$7,990	\$7,990	\$0
E6	Rubberized Asphalt LS5	\$624,874	\$624,874	\$18,258	\$624,874	\$0
E7	COT CNPA - Additional Conduits for Missions Palms	\$0	\$8,243	\$8,243	\$8,243	\$0
F2	McClintock / Apache Storm Drain	\$75,345	\$72,419	\$57,041	\$72,419	\$0
F9	Rubber Asphalt - Tempe	\$610,983	\$523,603	\$15,221	\$523,603	\$0
H3	Fiber Optic COT	\$427,239	\$421,934	\$103,963	\$441,978	(\$20,044)
J4	Catholic Protection of Waterline LS4 CO#15	\$158,638	\$158,638	\$110,538	\$158,638	\$0
J9	University Drive Station Bus Interface	\$509,186	\$509,186	\$0	\$509,186	\$0
K1	Veteran's Way- 5th/College TC	\$7,645	\$7,645	\$4,826	\$7,645	\$0
K2	Bus Shelter Electrification	\$11,076	\$11,076	\$7,315	\$11,076	\$0
K4	Washington/Center Parkway Station	\$4,989,270	\$1,852,431	\$746,923	\$4,528,131	(\$2,675,700)
N4	Tempe Market Analysis	\$44,378	\$44,378	\$43,254	\$44,378	\$0
XX	Tempe Miscellaneous Force Account Work LS5	\$20,000	\$20,000	\$10,708	\$20,000	\$0
	<b>Sub Total Tempe</b>	<b>\$8,973,986</b>	<b>\$5,997,386</b>	<b>\$2,308,368</b>	<b>\$8,716,609</b>	<b>(\$2,719,223)</b>
A9	Main Sycamore Transit Center	\$5,532,721	\$5,519,839	\$2,517,924	\$5,653,132	(\$133,293)
H4	Fiber Optic Backbone LS-4 (Mesa portion)	\$847,325	\$836,798	\$52,194	\$847,328	(\$10,530)
N3	Mesa Market Analysis	\$18,542	\$18,542	\$13,890	\$18,542	\$0
XX	Mesa Miscellaneous Force Account Work LS5	\$5,000	\$5,000	\$2,738	\$5,000	\$0
	<b>Sub Total Mesa</b>	<b>\$6,403,588</b>	<b>\$6,380,179</b>	<b>\$2,586,746</b>	<b>\$6,524,002</b>	<b>(\$143,823)</b>
C9	ASU Logo Additions	\$86,463	\$59,039	\$0	\$81,280	(\$22,241)
E2	ASU Steam Line	\$0	\$8,189	\$8,189	\$8,189	\$0
H1	Fiber Optic ASU	\$959,445	\$1,188,930	\$342,081	\$1,198,300	(\$9,370)
	<b>Sub Total ASU</b>	<b>\$1,045,908</b>	<b>\$1,256,158</b>	<b>\$350,270</b>	<b>\$1,287,769</b>	<b>(\$31,611)</b>
E1	(APS) Duct Bank at 48th St. Utility Bridge, Archaeological Support	\$76,309	\$74,344	\$57,870	\$76,309	(\$1,965)
F8	Rojo Lofts Property	\$81,999	\$14,786	\$0	\$81,998	(\$67,212)
	<b>Sub Total Other</b>	<b>\$158,308</b>	<b>\$89,130</b>	<b>\$57,870</b>	<b>\$158,307</b>	<b>(\$69,177)</b>
	<b>Grand Total CNPA</b>	<b>\$103,012,860</b>	<b>\$100,120,873</b>	<b>\$52,894,011</b>	<b>\$99,612,926</b>	<b>\$507,947</b>



### 3. Schedule Overview

The current Status of the Master Schedule is based on a data date of May 1, 2007. The current forecast continues to be an on-time Program completion date of Saturday, December 27, 2008.

Line Section Contracts 2 and 5 continue to work through utility relocation issues. To date, the Program has been successful in mitigating the delays with a minimum of acceleration to the Civil Contracts.

Partnering and detailed scheduling meetings with all of the Major Contracts Project Managers and the Resident Engineers have continued to facilitate a phased startup plan and to integrate access milestones.

Over 109,000 linear feet (20.7 miles) of track has been placed in Line Sections 1, 2, 3, 4, 5 and OMC. Over 780 of the 1400 OCS Foundations have been placed and pole setting by the TES Contractor is ongoing. (Chart below)

Light Rail Vehicles are now on-site and being assembled at the OCC Facility.

Track Installation							
Line Section	Bid Quantity		Installed		Remaining		% Complete
	LF	Miles	LF	Miles	LF	Miles	
OMC	19,261	3.65	19,261	3.65	0	0.00	100.0%
Line Section 1	23,454	4.44	4,600	0.87	18,854	3.57	19.6%
Line Section 2	30,752	5.82	4,980	0.94	25,772	4.88	16.2%
Line Section 3	44,629	8.45	27,020	5.12	17,609	3.34	60.5%
Line Section 4	56,054	10.62	36,004	6.82	20,050	3.80	64.2%
Line Section 5	50,818	9.62	17,620	3.34	33,198	6.29	34.7%
Total	224,968	42.61	109,485	20.74	115,483	21.87	48.7%
OCS Pole and Down Guy Anchor Foundations							
Line Section	Bid Quantity	Installed	Remaining				% Complete
Line Section 1	136	46	90				33.8%
Line Section 2	184	42	142				22.8%
Line Section 3	481	323	158				67.2%
Line Section 4	257	176	81				68.5%
Line Section 5	342	200	142				58.5%
Total	1,400	787	613				56.2%



Traction Electrification					
Area	Description	U/M	Bid Quantity	Installed	% Complete
TPSS number 1 Thru 15	750 kcmil Feeder Cable	LF	135,580	89,210	65.8%
Yard	500 kcmil Feeder Cable	LF	2,175	916	42.1%
All Line Sections/Yard	OCS Pole Assemblies	EA	1,469	247	16.8%
All Line Sections/Yard	SCAT/SCFT Wiring	LF	235,402	20,909	8.9%
All Line Sections/Yard	SWAT/SWFT Wiring	LF	36,318	24,067	66.3%
All Line Sections/Yard	Cantilever Assemblies	EA	2,021	357	17.7%

**Major Milestones**

**Civil:**

Line Section 1 Completion: February, 2008  
 Line Section 2 Completion: December, 2007  
 Line Section 3 Completion: January, 2008  
 Test Track Completion: February, 2007  
 Line Section 4 Completion: December, 2007  
 Line Section 5 Completion: March, 2008  
 Operations and Maintenance Center Completion: January, 2007  
 Tempe Town Lake: August, 2006  
 Station Finishes: October, 2008  
 Park and Ride: October, 2008

**Systems:**

Signals and Communications: October, 2008  
 Fare Collection: November, 2008  
 Traction Electrification: August, 2008

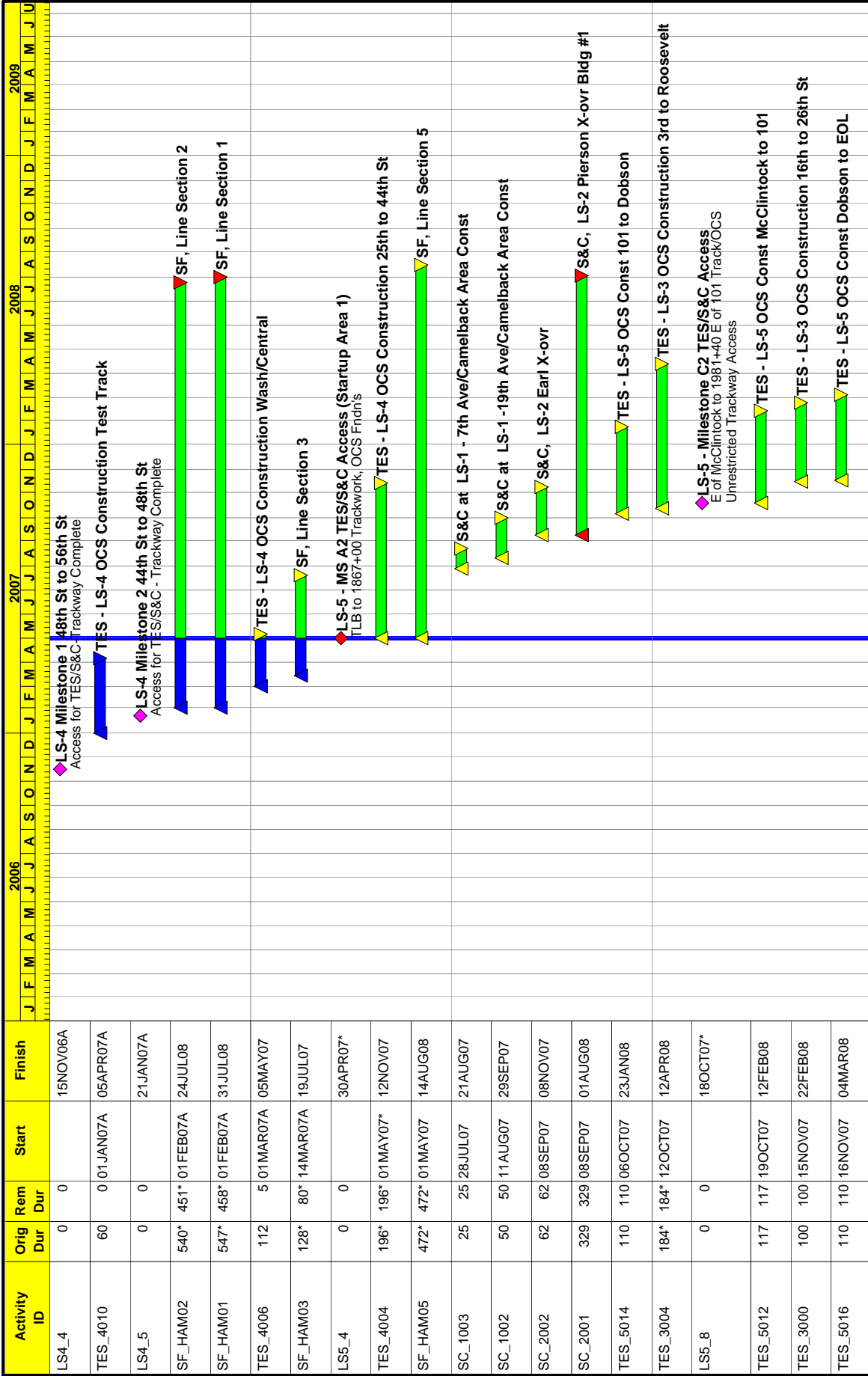


**Startup:**

Start Integrated Testing Area 1 (Part of LS-4 and majority of LS-5):	March, 2008
Start Integrated Testing Area 2 (LS-3 and Balance of LS-4 and 5):	June, 2008
Start Integrated Testing Area 3 (All of LS-2 and LS-1):	July, 2008

**Critical Path(s):**

The Program critical Paths run through Utility relocations in the Line Sections to the completion of the Station Foundations in the Line Sections, through the Completion of the stations to a point that the Signals and Communications Contractor can install the signals equipment and wiring, through the completion of the track-way in the Line Sections, thru the installation of the Overhead Contact System (OCS) to the Phased Integrated Testing, to the Completion of the Safety Certification, to Pre-Revenue Operations to the Revenue Service date of late December, 2008.



Start Date: 01AUG04  
 Finish Date: 26DEC08  
 Data Date: 01MAY07  
 Run Date: 07MAY07 11:55

7005

Valley Metro Rail  
 Central Phoenix/East Valley LRT  
 Revised Master

Sheet 1 of 2

Critical Path





**Procurement Bid Status Report as of 04/26/07**

<b>Title</b>	<b>Issue Date</b>	<b>Pre-Bid Conf</b>	<b>Bid Opening</b>	<b>Board Award</b>	<b>NTP (Anticipated)</b>
<b>PART I – CP/EV LRT PROJECTS</b>					
Park and Rides	04/23/07	05/02/07	05/22/07	07/18/07	08/13/07
LRT Systems and Facilities Maintenance - RFP	04/02/07	04/18/07	05/22/07	10/17/07	12/01/07
Power Consulting Services	TBD	TBD	TBD	TBD	TBD
Advertising & Public Relations Consultant	TBD	TBD	TBD	TBD	TBD
Broker Services	TBD	TBD	TBD	TBD	TBD
Event Planning Consultant – System Opening	TBD	TBD	TBD	TBD	TBD
<b>PART II – LONG RANGE DEVELOPMENT PROJECTS</b>					
Planning, Conceptual Engineering, and Environmental Studies for Future Light Rail Extensions – I-10/Glendale	08/10/06	08/30/06 & 09/26/06	10/18/06	02/21/07	04/30/07
Policy & Advisory Legal Services	12/18/06	N/A	01/26/07	04/10/07	04/30/07
Northwest LRT Extension Engineering Services	10/16/06	10/31/06	11/20/06	06/20/07	07/02/07
Construction Manager at Risk for Northwest Extension Light Rail Transit Project	04/30/07	05/14/07	06/06/07	09/19/07	10/02/07
Artist for Northwest Extension Light Rail Transit Project	TBD	TBD	TBD	TBD	TBD
Architectural/Engineering On-Call Consultant Services - Future Extension Projects	TBD	TBD	TBD	TBD	TBD
Public Involvement On-Call Support Services – Future Extension Projects	04/23/07	N/A	05/07/07	06/20/07	06/21/07
A&E On-Call Services	TBD	TBD	TBD	TBD	TBD
Contracts & Procurement On-Call Services	TBD	TBD	TBD	TBD	TBD



## 4. Quality Assurance

### Description

The METRO Quality Assurance Manager is responsible for the establishment and implementation of a Quality Assurance Program for the METRO organization that meets the requirements of the Federal Transit Administration and provides adequate confidence that procured materials and services meet the technical and quality requirements of the project. The METRO Quality Assurance Manager is assisted by the Quality Assurance Managers for the GEC for design, the GEC for LRT Vehicle procurement and the CAC for construction, installation, inspection and testing.

Individually and collectively, the Quality Assurance Managers are responsible for ensuring the effective implementation of the Quality Assurance Programs for their respective organizations and contractors. The Quality Assurance Managers are responsible for approval of quality programs, assessment of compliance with quality programs through inspections, audits and surveillances and for identifying nonconforming materials, parts and services and assuring effective corrective action.

### PROGRESS

#### METRO Activities

##### Civil and Systems:

- Attended weekly Resident Engineer meetings.
- Attended various Line Section weekly re-sequencing and coordination meetings.
- Conducted a Surveillance Report of Line Section 5 inspection activity.
- Conducted a Surveillance Report of Station Finishes steel fabrication subcontractor shop facilities, specifically the specially purchased automated welding equipment.
- Conducted an audit of the Resident Engineer's (RE) compliance with selected sections of the RE Manual for Procurement Contracts MP8 and MP9. Audit closed.
- Closed the Quality Action Report (QAR) for March audit finding on the Traction Electrification Systems Contract.
- Closed the QAR for March audit finding on the Line Section 1 Contract.

##### Light Rail Vehicle:

- Witnessed static functional tests on cars 101 and 102.
- Witnessed source inspection of high speed circuit breakers.
- Verified cab console labeling and equipment.
- Witnessed vehicle static functional tests of car 101.
- Witnessed visual inspection of truck assembly.



- Conducted an inspection of all roof mounted equipment and work performed on the car roof.
- Witnessed test runs and chart recordings of car 101.

### Construction Administration Consultant Activities

#### Quality Manuals Reviewed:

- None during this period.

#### Quality Assurance Audits/Surveillances:

- Attended weekly Resident Engineer meetings.
- Attended various Line Section weekly coordination meetings.
- Performed an audit of the Line Section 5 Resident Engineer.
- Performed surveillance for Special Trackwork at VAE Nortrack.
- Nonconformance Report Log (NCR), 41 open items.
- Quality Action Request Log (QAR), 25 open items.
  - Nine items were closed in April.
  - Fourteen items are projected to be closed in May.
  - Five items are projected to be closed in June.

### **Cost and Schedule – Variance Analysis**

- Quality Assurance activities remain within budget and on schedule.

### **Issues and Solutions**

- None.

## 5. Public Involvement



### Description

The Public Involvement Section is responsible for sharing information on the Project with stakeholders along the light rail alignment, documenting questions and concerns expressed by these stakeholders and ensuring that appropriate Project staff addresses them, and providing answers and feedback to those stakeholders on the outcome. At this stage of the Project, PI Area Coordinators are working with stakeholders in their respective line sections to provide the latest information on the design plans with regard to right-of-way requirements, traffic circulation, landscaping, and locations for traction power substations and signal houses. They are also sharing information on business assistance programs with the owners and managers of businesses located along the light rail corridor.

### Progress

On Tuesday, April 3, 2007, Line Section 1 Area Coordinator, Dee Hidalgo-Coe, provided a presentation on the most recent light rail updates at the monthly Medlock Place Neighborhood Association Meeting. Public Involvement Manager, Howard Steere, Kiewit Superintendent, Dave Ruzicka, and Traffic Engineer for the City of Phoenix Neighborhood Traffic Management Division, Ken Fong, attended and were available to answer questions. In April, Line Section 4 METRO Staff, Gary Flunoy and Joe Cosgrove, made safety presentations to employees of businesses near the test track.

**BUSINESS ASSISTANCE**



- Order and delivery of Courtesy Signage Program continues in all Line Sections. Through April, **602** signs and **360** banners (**962** totals) have been issued for businesses in all five Line Sections. The following table illustrates the current distribution for this program:

**METRO  
Construction Signage/Banner Program  
Overall Distribution**

Line Section	Signs	Banners	Total
Line Section One (LS1)	62	65	127
Line Section Two (LS2)	92	55	147
Line Section Three (LS3)	231	75	306
Line Section Four (LS4)	35	33	68
Line Section Five (LS5)	182	132	314
<b>Totals</b>	<b>602</b>	<b>360</b>	<b>962</b>

**METRO Business Outreach Program**

The following is a break down of **Phoenix** business outreach statistics as of February 1, 2007:

- METRO Max Program Participants – **189** businesses
- Construction Signage Program – **962** ( 602 signs and 360 banners)
- City of Tempe Asset Assistance Program – **1**
- City of Mesa/U.S. Bank Asset Assistance Program – Outreach continues
- Management Technical Assistance (MTA) Program – **269** businesses
- ASU Market Needs Assessment – **112** businesses (101 Complete /11 In-Progress)



- SELF Seminars / Micro Loan Assistance – **22** Businesses
- SBDC One-on-One Consultation - **17** Businesses
- Prestamos – Chicanos Por La Causa – **3** Businesses

COMMUNITY ADVISORY BOARDS (CAB) - Meetings are scheduled on a monthly basis to evaluate the contractor's efforts to go "above and beyond" the contract specifications during light rail construction.



## LS1

- LS1 conducted its Community Advisory Board (CAB) meeting on Tuesday, April 10, 2007, at AmeriSchools Academy. Mr. Larry Engleman, METRO Chief of Safety and Security, provided an overview of METRO's safety and security measures for construction, vehicle testing, and operations. He explained METRO staff reviewed other light rail systems to determine best practices for the train, traffic, and pedestrians and incorporated their findings into the design of CPEV project. Mr. Engleman also explained the safety and security features on the vehicle and station platform and shared pictures/diagrams of these features. Members asked questions about emergencies at the stations and response to those emergencies, park and ride security, overhead catenary wire safety, and passenger safety if there is an accident involving the train. During the contractor's presentation, Mr. Dennis Onstott, Kiewit's Project Manager, updated the board on the tentative schedule for major milestone completion. Mr. Onstott stated 7<sup>th</sup> Avenue would be completed with track installation ahead of schedule; rail installation will be through 15<sup>th</sup> Avenue, and the south side of Camelback, from 15<sup>th</sup> to 19<sup>th</sup> Avenues, paved by late May; rail installation will be to the Camelback station by late August; and Camelback (Central to 19<sup>th</sup>) paved with rubberized asphalt by Thanksgiving 2007. Mr. Onstott noted 19<sup>th</sup> Avenue would be complete July 2008. Kiewit received kudos from three CAB members. Mr. Gary LeBlanc thanked Kiewit for their cooperation as AmeriSchools made improvements to their property. Ms. Diane Scherer commented Kiewit did a good job with a water outage affecting her business. Mr. James Brown noted Kiewit efforts for trash pick-up and graffiti removal have been great in the last few weeks. Kiewit received an overall rating of 100 percent, for their effort going "above and beyond" the contract specifications. The next LS1 CAB meeting is scheduled for Tuesday, May 8, 2007.



## LS2

- LS2 held their monthly meeting Tuesday, April 17<sup>th</sup> at Brophy College Preparatory. Mr. Brian Buchanan provided a status update on the METRO system. He noted the overall project is 58 percent complete and updated the members on the vehicle, Operations and Maintenance Center, and construction progress in the five line sections. Mr. Buchanan explained the test track area, why testing is conducted, the safety campaign for the test track, and shared a picture of the vehicle being tested. Members asked questions about schedule and the vehicle lay-out. During review of activity reports regarding night time and early morning construction noise, METRO and Herzog communicated the hours of their permit and why work is being conducted during these times. Mr. Marty Spong stated Herzog is being cognizant of the noise and is trying to keep it to a minimum in the early morning and late evening hours. Herzog noted they have distributed notices to surrounding communities regarding the extended work times and the noise expected. One member commented the warning beepers are the loudest noise and inquired if something could be done. Mr. Spong said he would look into it. During the contractor's presentation, Mr. Pat Gray noted track will be placed at the Camelback station, connecting LS1 and LS2, by mid-May. He noted Herzog has paved 4,000 feet of track at this point and highlighted the schedule for guideway excavation for next few months. On another note, Mr. Gray said they have not lost one historic palm tree in the area from Virginia to McDowell. Herzog received an overall rating of 90 percent, for their effort going "above and beyond" the contract specifications. The next LS2 CAB meeting is scheduled for Tuesday, May 15, 2007 at Brophy College Preparatory.

## LS3

- LS3 conducted their monthly meeting on Tuesday, April 10, 2007 at the METRO Operations and Maintenance Center. Members of the general public addressed the CAB on traffic safety-related issues. The Activity Reports for the month and Construction Survey Summaries were reviewed for the members. Responses on the surveys were mostly positive. Archer Western Contractors (AWC) delivered the contractor presentation, highlighting the progress and successes they have achieved during the past month and displayed examples of AWC going "above and beyond" contract specifications. Members were given a tour of the Operations and Maintenance Center, conducted by Jay Harper, METRO Operations Manager. AWC received an overall rating of 80 percent, for their effort going "above and beyond" the contract specifications. The next LS3 CAB meeting is scheduled for Tuesday, May 8, 2007 at the METRO offices.

## LS4

- LS4 held their monthly CAB Meeting on Thursday, April 11, 2007, at the METRO Operations and Maintenance Center. To fulfill recent requests about new traffic signals in LS4, the CAB welcomed Tom Godbee and Ron Doubek from the City of Phoenix Street Department to the meeting. Mr. Doubek presented information on new signal locations, protocol and pre-operation activities for new signals, and the next steps in the process. This was followed by a question and answer session. The contractor had an opportunity to present to the CAB past, current, and future construction activities. Erik Yingling, Sundt/Stacy and Witbeck (SSWJV) Project Manager, briefed the CAB on the track work going on the east end of the project. SSWJV is currently constructing track on the Town Lake Bridge to connect the rail on the south approach to the bridge. Work on the Center Parkway station is ongoing. SSWJV is also working on irrigation in the median in these areas. Track and guideway work is underway and proceeding on Washington



Street westward from 44<sup>th</sup> to 32<sup>nd</sup> Streets. The three week look ahead of construction activities was notably highlighted by grinding work in preparation for the final rubberized asphalt paving on Washington Street from 44<sup>th</sup> to Center Parkway taking place from April 9<sup>th</sup> through the 19<sup>th</sup>. Paving is set for Friday and Saturday night on the weekends of May 4<sup>th</sup> and 5<sup>th</sup> and May 11<sup>th</sup> and 12<sup>th</sup>. SSWJV staff emphasized the need to communicate cautious driving and always obey the posted 25 mph speed limit in the construction area SSWJV received an overall rating of 100 percent for the month of April. The next LS4 CAB Meeting is scheduled for Wednesday, May 9, 2007 at the METRO Operations and Maintenance Center.

### LS5

- LS5 conducted it's CAB meeting on Thursday, April 12, 2007 at the Escalante Center. METRO staff updated the board on utility work in both Tempe and Mesa. Meeting attendees discussed the activity reports that were generated for the month. Additional discussions related to reports were centered around stakeholder's responsibilities/negligence with cost to cure items, debris that was cleaned by SSWJV due to work on the Loop 101 bridge over Apache, irrigation issues in the area in which SSWJV was hand-watering the landscaping and communicating timelines to stakeholders, and stakeholder concerns related to traffic management (contractor related and non-contractor related). METRO staff communicated their appreciation to SSWJV for a job well done on track work completion of Milestone A which includes 16,000 feet of track installed from First and Ash Street (eastward), through downtown Tempe, across ASU campus on Veterans Way to Rural Road. SSWJV was presented with a banner exclaiming the congratulations. An overview of past, current, and future construction activities was provided by John Zehner, Sundt/Stacy and Witbeck Joint Venture (SSWJV) Project Manager. Mr. Zehner briefed the board on details of what went into accomplishing Milestone A (last activity is 5<sup>th</sup> Street and College station platform). SSWJV staff handled a challenging situation by relocating items left in the Temporary Construction Easement (TCE) during night work to keep businesses open during their normal daytime business hours. SSWJV is working on sidewalk, curb, and gutter on Apache Boulevard. Upcoming work communicated by Mr. Zehner included track work installation from Terrace, crossing Apache Boulevard, to Dorsey Lane. The relocation of street lighting is ongoing on Main Street (Roosevelt St. intersection). SSWJV attended the 2007 National Work Zone Awareness Week which took place on the Tempe Canal. Sundt/Stacy and Witbeck received an overall rating of 100percent for their efforts notifying businesses of upcoming work, responding to several community concerns and requests, and maintaining orderly construction zones and keeping dust to a minimum. The next meeting is scheduled for Thursday, May 10, 2007 at the Escalante Community Center.

### **Cost Status**

- Scheduled CAB Disbursement remains the same as the previous month:

Total Available Incentive:	<b>\$2,500,000.00</b> (10 Quarterly disbursements)
Total Miles of Street with LRT:	23.53 miles
Allocation per Mile:	\$106,247.34
Total CAB Disbursement through April is at	<b>\$ 1,524,989</b>



Line Section	Total Amount Available	Available for Award to Date	Total Award to Date	% Award to Date
LS-1	\$241,181.00	\$120,591	\$120,591	100%
LS-2	\$317,680.00	\$190,608	\$177,901	93%
LS-3	\$865,916.00	\$606,141	\$484,913	80%
LS-4	\$567,361.00	\$453,889	\$436,858	96%
LS-5	\$507,862.00	\$304,717	\$304,717	100%

### Cost and Schedule – Variance Analysis

- Public Involvement activities remain within budget and on schedule.

### Issues and Solutions

- **Issue:** Night time noise continues to be issue in Line Sections 2 and 3.

**Solution:** Both impacted contractors, Herzog and Archer Western, are developing plans to avoid conducting extremely loud activities, such as; jack-hammering, concrete/asphalt saw cutting and rail cutting. City of Phoenix also indicated that permits issues are subject to revocation.



## 6. Disadvantaged Business Enterprise Program

### Description

It is the Disadvantaged Business Enterprise (DBE) Program Section's responsibility to administer the DBE participation requirements mandated by the Federal Government as a condition of the receipt of funding. These participation requirements are established by the City of Phoenix Equal Opportunity Department through the DBE Program Plan and are conveyed to Valley Metro Rail, as a sub-recipient, through the Civil Rights Office of the Public Transit Department.

The DBE Program Section is responsible for ensuring that procurement and contract language, specific to the program, accurately reflects current requirements. During the procurement process, the DBE Program Section is responsible for responding to Requests for Information, presenting the DBE documentation requirements at pre-bid conferences, and conducting contractor and DBE subcontractor training sessions. At Bid Opening, the accuracy of DBE documentation submitted with each bid must be verified and each bidder must be found either responsive or non-responsive. Upon contract execution, pre-construction meetings are held and reporting/compliance requirements are addressed in more detail. Monthly utilization reports are submitted by each prime contractor and are reviewed by the DBE Program Section. Field issues and variances in the planned utilization are addressed on an on-going/as-needed basis. In order to ensure adequate DBE participation and the availability of DBE contractors, on-going outreach activities are also conducted to facilitate networking of DBEs with prime contractors and to encourage DBE certification of non-certified small businesses.

### Progress

- Overall DBE participation based on amounts originally awarded is 14.80 percent, participation including change order work is at 14.94 percent and DBE's have been paid 13.23 percent of construction dollars to date.

### Procurement Activities

- The Systems and Facilities Maintenance procurement is scheduled for release in late March, 2007. The DBE participation goal is 6.8 percent. Five companies were pre-qualified for this procurement. The networking event for this procurement was canceled due to lack of participation by the pre-qualified primes; most of the companies are out-of-state and were unable to participate.
- The Park-N-Ride procurement will be released in early April, 2007. METRO is preparing an Invitation for Bid(s) that will enable contractors to bid on single, multiple, or all Park-N-Ride locations. The DBE Participation goal for the contract has been set at 21 percent. The DBE contractors, and the small business community as a whole, have expressed great interest in these projects. A procurement-specific networking session will be hosted by METRO on May 10, 2007 to assist DBEs in meeting with potential primes.



Contract Compliance

The summary below does not include DBE participation for professional services contracts related to future extensions or METRO's DBE vendors.

- Line Section 1 - Kiewit Western Contractors
  - 12.10 percent Minimum DBE Participation
  - 13.77 percent Committed at Bid
  - 13.64 percent Current DBE Participation (based on adjusted contract amounts)
  - \$7,645,822 Total DBE Subcontracted Amount
- Line Section 2 - Herzog
  - 12.10 percent Minimum DBE Participation
  - 15.69 percent Committed at Bid
  - 20.20 percent Current DBE Participation (based on adjusted contract amounts)
  - \$11,484,648 Total DBE Subcontracted Amount
- Line Section 3 - Archer Western Contractors
  - 12.30 percent Minimum DBE Participation
  - 13.59 percent Committed at Bid
  - 14.91 percent Current DBE Participation (Based on adjusted contract amounts)
  - \$14,854,404 Total DBE Subcontracted Amount
- Line Section 4 - Sundt/Stacy and Witbeck
  - 11.50 percent Minimum DBE Participation
  - 14.47 percent Committed at Bid
  - 12.08 percent Current DBE Participation (based on adjusted contract amounts)
  - \$7,294,677 Total DBE Subcontracted Amount
- Line Section 5 - Sundt/Stacy and Witbeck
  - 14.90 percent Minimum DBE Participation
  - 16.73 percent Committed at Bid
  - 19.94 percent Current DBE Participation (based on adjusted contract amounts)
  - \$14,323,014 Total DBE Subcontracted Amount



- Station Finishes - Archer Western Contractors
  - 12.20 percent Minimum DBE Participation
  - 12.98 percent Committed at Bid
  - 14.41 percent Current DBE Participation (based on adjusted contract amounts)
  - \$9,055,998 Total DBE Subcontracted Amount
- Operations and Maintenance Center - Sundt/Stacy and Witbeck
  - 7.34 percent Minimum DBE Participation
  - 7.54 percent Committed at Bid
  - 8.21 percent Current DBE Participation (based on adjusted contract amounts)
  - \$4,73,643 Total DBE Subcontracted Amount
- Traction Electrification - Mass Electric
  - 10.00 percent Minimum DBE Participation
  - 10.20 percent Committed at Bid
  - 10.57 percent Current DBE Participation (based on adjusted contract amounts)
  - \$6,045,566 Total DBE Subcontracted Amount
- Signals and Communication - Mass Electric
  - 11.00 percent Minimum DBE Participation
  - 11.67 percent Committed at Bid
  - 11.50 percent Current DBE Participation (based on adjusted contract amounts)
  - \$4,612,729 Total DBE Subcontracted Amount
- Tempe Town Lake Bridge - PCL Civil Constructors
  - 12.00 percent Minimum DBE Participation
  - 14.49 percent Committed at Bid
  - 20.80 percent Current DBE Participation (based on adjusted contract amounts)
  - \$4,559.765.58 Total DBE Subcontracted Amount
- Construction Administration Consultant - PBS&J/PGH Wong Joint Venture
  - 21.00 percent Minimum DBE Participation
  - 25.35 percent Committed at Bid



- 32.29 percent Current DBE Participation (based on adjusted contract amounts)
- \$12,390,770 Total DBE Subcontracted Amount
- Program Management Consultant - SRBA/Parsons Joint Venture
  - 1.5 percent Minimum DBE Participation (established post contract award)
  - 0 percent Committed at Bid
  - 4.25 percent Current DBE Participation (based on adjusted contract amounts)
  - \$1,704,758 Total DBE Subcontracted Amount
- General Engineering Consultant - Parsons Brinckerhoff
  - 13.00 percent Minimum DBE Participation
  - 13.89 percent Committed at Bid
  - 16.06 percent Current DBE Participation (based on adjusted contract amounts)
  - \$11,392,061 Total DBE Subcontracted Amount
- Fare Collection System - Scheidt Bachmann
  - 8.20 percent Minimum DBE Participation
  - 8.39 percent Committed at Bid
  - 8.39 percent Current DBE Participation (based on adjusted contract amounts)
  - \$627,000 Total DBE Subcontracted Amount
- Material Procurements - Multiple Suppliers
  - 3.00 percent Minimum DBE Participation
  - 3.00 percent Committed at Bid
  - 3.00 percent Current DBE Participation (based on adjusted contract amounts)
  - \$1,770,322.77 Total DBE Subcontracted Amount

#### Outreach Activities

- The DBE Outreach Advisory Committee met April 17, 2007. The following upcoming activities were discussed:
  - AMCA Golf Tournament – April 20, 2007
  - USDOT OSDBU Roundtable – April 24, 2007
  - ADOT DBE Conference – April 24 – 25, 2007
  - AMBEC MED Week Award Nominations Due – April 30, 2007



- Grand Canyon Minority Supplier Development Council Dinner – May 19, 2007
- WTS Scholarship Golf Tournament – May 22, 2007
- AMBEC MED Week – July 13, 2007 (Contact Alikea Kumar)
- In addition to the events listed above, METRO will be hosting DBE workshops in the months of September and November/December. Workshop topics are under discussion. Additional training opportunities may be provided based on recommendations from committee members.

### **Cost and Schedule – Variance Analysis**

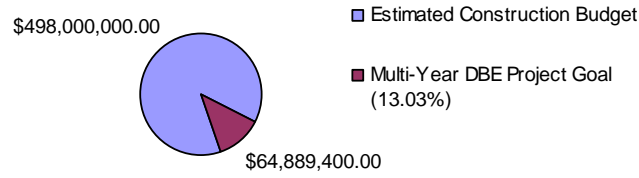
- DBE activities remain within budget and on schedule.

### **Issues and Solutions**

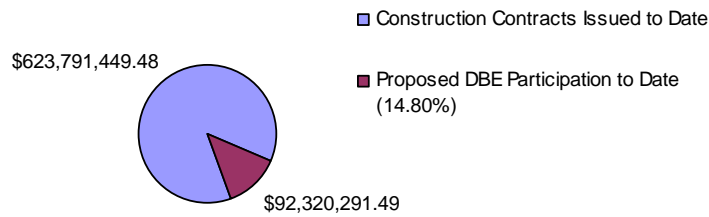
- LS1, LS4, and Signals Communication – DBE participation has dropped below the percentage committed to at the time of bid. METRO staff will work with the contractors to verify current contract amounts and help identify additional opportunities for DBE participation if necessary.
- LS5 – As previously reported, an issue related to final payment of a DBE subcontractor has been reported. METRO staff has been working with the DBE and the prime contractor to resolve the dispute. METRO staff met with the DBE subcontractor on Friday, April 20, 2007 and arranged a final meeting between the sub and the prime for Friday, April 27, 2007. As a result of the April 27<sup>th</sup> meeting, final payment arrangements have been reached.



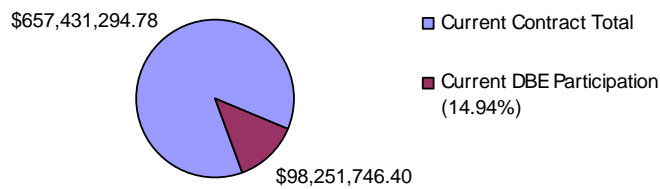
### DBE Program Overview



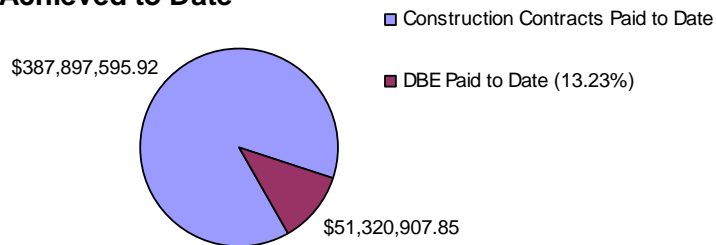
### Original Contract Amounts



### Current Participation



### Achieved to Date





## 7. System Safety and Security

### Description

The System Safety and Security Department is responsible for establishing requirements for the identification, evaluation, and minimization of safety and security risks throughout all phases of the project, including revenue operations.

The Section has developed and is administering provisions of the System Safety Program Plan, the System Security Program Plan, and the Safety and Security Certification Plan.

### Progress

- Track Access Training was conducted for 93 METRO, consultant, and contractor personnel.
- Participated in the LS1 Citizens Advisory Board meeting by presenting on safety and security.
- Participated in the operation of car 101 under its own power in the Operations and Maintenance Center yard and on the test track, and the first high speed testing on the test track.
- Developed and implemented an emergency notification procedure for test operations.
- Began revising the METRO System Safety Program Plan to conform to the new ADOT Safety and Security Program Standard.
- Continued with the process to develop light rail codes and ordinances for traffic, public conduct, and fare inspection enforcement with the City of Phoenix Law Department.
- Continued working with the safety and security certification support consultant to develop checklists and monitor implementation of the program.
- Conducted Security Breach Review Committee meeting concerning graffiti vandalism to car 104 in the OMC yard.
- Continued review and comment process for METRO Standard Operating Procedures.
- Conducted the Fire/Life Safety and Security Committee meeting.
- Conducted the Safety and Security Certification Review Committee meeting.

### Cost and Schedule – Variance Analysis

- Safety and Security activities remain within budget and on schedule.

### Issues and Solutions

- None.



## 8. Environmental Management

### Description

During design and construction, the Environmental Manager is responsible for overseeing the compliance with federal and State environmental laws/regulations, the Project's environmental/historic preservation obligations, implementing the requirements of the Final Environmental Impact Statement (FEIS), Record of Decision (ROD), and Section 106 Memorandum of Agreement.

The Environmental Manager is also responsible for review of all proposed Project changes to determine if the proposed change is consistent with the Project Definition as stated in the FEIS and to determine if the change presents any environmental impact not addressed in the FEIS/ROD. If a proposed change results in potential new impacts, the Manager shall document those impacts and secure FTA concurrence with the change, definition of impacts and proposed mitigation.

### Progress

#### Archaeology:

- Provided archaeological monitoring in LS 2, 3, 4 and 5 for all ground disturbance activities.
- A series of prehistoric and historic canal features were identified along Washington Street.
- ACS has been providing four field archaeologists and one supervisor, and has maintained schedule commitments.
- ACS is completing inventory of recovered resources and preparing draft sampling plan for analysis work effort.

#### Contaminated and Hazardous Materials:

- Contaminated soils have been removed at 34<sup>th</sup> and Washington.
- Programmed to re-start the Soil Mitigation Management Plan (SMMP) at Central and Camelback in support of Station Finishes activities.

#### Regulatory Compliance:

- Conducted field observation for contractor compliance with the Storm Water Pollution Prevention Plan (SWPPP). No substantial problems were identified.

### Cost and Schedule – Variance Analysis

#### Archaeology (Includes invoicing to CAC and METRO)

Original Contract Value (CAC)	\$1,500,064
Approved Change Orders (CAC)	\$2,137,936



METRO Contract Monitoring FY 07	\$325,000
Contract Value to date (CAC + METRO)	\$3,963,000
Invoiced through February 28, 2007 to CAC	(\$3,634,795)
Invoice to METRO March 1 – April 30, 2007	(\$187,243)
Estimated cost May '07 through June '07	\$137,757
Estimated cost for construction monitoring FY'08	\$175,000
Contingency for data recovery through end of construction	\$100,000
Total estimated costs for field archaeology	\$4,243,795

Hazardous Materials Assessment (CAC) (To be up dated upon receipt of invoices)

Original Contract Value	\$499,488
Contract Value to date	\$499,488
Invoiced as of February 28, 2006	(\$418,076)
Task orders open	(\$35,331)
Expended or Committed	\$453,407
Estimated Cost to Complete	45,000
Estimated total Cost	\$498,407

Remediation and Treatment Fund (METRO) (To be up dated upon receipt of invoices)

Budget	\$1,004,000
Expended or Committed	(\$188,680)
Data Recovery Report	(\$84,956)
ERI	(\$103,724)
Transferred to Archaeology Monitoring-Data Recovery	\$650,000
Funds Available	\$165,320

**Issues and Solutions**

- No outstanding issues



## 9. Real Estate

### Description

The LRT Project travels down main business arterials in the cities of Phoenix, Tempe and Mesa and approximately 778 parcels of property are affected. The number of right-of-way certifications required within this 20-mile corridor is in excess of 2,500. This number includes all easements required by the project, such as utility, irrigation, sidewalk, traffic, slope, landscape and temporary construction. Real Estate staff members from the project cities are responsible for obtaining all of the necessary property rights required to construct and operate the LRT system. Oversight and coordination of the cities' activities is provided by METRO Real Estate staff.

### Progress

- Presently, 99 percent of the required properties are now under city control and 95 percent of the properties are available for construction. Extensive coordination between METRO and City staff has enabled the project to obtain these properties in a manner sufficient to support construction.
- In Line Section 1, 182 relocations have now been completed and only one remains. One-hundred forty-nine parcels are under City control and a total of 132 parcels are available for construction. Line Section 1 contains 151 parcels.
- In Line Section 2, all 29 relocations have now been completed. A total of 89 parcels are under city control and 83 parcels are available for construction. Line Section 2 contains 92 parcels.
- In Line Section 3, 35 relocations have now been completed and only 1 relocation remains. All parcels are now under City control and 247 parcels are available for construction. Line Section 3 contains 259 parcels.
- In Line Section 4, all 28 relocations have now been completed. All parcels are now under City control and are available for construction. Line Section 4 contains 109 parcels.
- In Line Section 5, all 40 relocations have been completed. All parcels are now under City control and all but one parcel is available for construction. Line Section 5 contains 168 parcels.
- In Line Sections 1, 2, 3 and 4; eighteen building cut and re-faces were identified; seventeen have been completed and one is currently underway. These building modifications required a structural engineering analysis, architectural and utility modifications, the procurement of relevant contractors and an extensive permitting process.
- The FTA Real Estate Program Compliance Review cited nine areas of noncompliance. Presently, five of these citations have been resolved and accepted by the FTA. As of May 1, 2007, the remaining four issues have been fully addressed and are awaiting FTA review and approval.



- An updated Real Estate Acquisition Summary sheet is included at the end of this section.

	<b>5309</b>	<b>CNPA</b>	<b>Total</b>
Budget	\$116,214,150	\$22,221,205	\$138,435,355
Available Contingency	\$ 19,557,203	\$ 1,753,931	\$ 21,311,134
Total	\$135,771,353	\$23,975,136	\$159,746,489
Spent To Date	\$124,777,816	\$21,260,522	\$146,038,338
Balance Available	\$ 10,993,537	\$ 2,714,614	\$ 13,708,151

### **Cost and Schedule – Variance Analysis**

- A focused real estate effort was initiated to accelerate the acquisition process and thus eliminate a negative impact to the project schedule. The Cities are working diligently with METRO to improve and streamline processes wherever possible.
- The overall real estate forecast is still within the budget and actual costs are within the budget plus contingency for the real estate contract unit.

### **Issues and Solutions**

- The parcels that were negatively impacting the schedule have been eliminated. The energy of the project team is focused where it is needed most. In Line Sections 1, 2 and 3 there are a few parcels that remain unavailable for construction and efforts are focused to acquire and/or clear these parcels.



**CENTRAL PHOENIX / EAST VALLEY  
LIGHT RAIL TRANSIT PROJECT  
REAL ESTATE ACQUISITION SUMMARY**

**April 30, 2007**

<b>ACTIVITY</b>								
	<b>1 PHX</b>	<b>2 PHX</b>	<b>3 PHX</b>	<b>4 PHX</b>	<b>4 TEMPE</b>	<b>5 TEMPE</b>	<b>5 MESA</b>	<b>Totals</b>
Full Takes	40	0	9	2	0	12	0	<b>63</b>
Partial Takes	111	92	250	106	1	109	46	<b>715</b>
<b>Total Affected Parcels</b>	<b>151</b>	<b>92</b>	<b>259</b>	<b>108</b>	<b>1</b>	<b>121</b>	<b>46</b>	<b>778</b>
Projected Relocations	183	29	36	28	0	40	0	<b>316</b>
Title Reports Completed	151	92	259	108	1	121	46	<b>778</b>
Legals sent to City	151	92	259	108	1	121	46	<b>778</b>
Appraisals Requested	151	92	259	108	1	121	46	<b>778</b>
Appraisals Completed	151	92	259	108	1	121	46	<b>778</b>
Offers Made	151	92	259	108	1	121	46	<b>778</b>
Offers Accepted	109	65	224	85	1	90	36	<b>610</b>
<b>Escrow Closed Acquisition Complete</b>	<b>107</b>	<b>64</b>	<b>221</b>	<b>87</b>	<b>1</b>	<b>98</b>	<b>39</b>	<b>617</b>
Condemnation Filed	26	12	25	11	0	29	17	<b>120</b>
OIP Received	24	8	20	9	0	21	7	<b>89</b>
ROE Signed	18	17	19	12	0	2	0	<b>68</b>
Relocations Underway	1	0	1	0	0	0	0	<b>2</b>
Relocations Completed	182	29	35	28	0	40	0	<b>314</b>
<b>Parcels Under City Control</b>	<b>149</b>	<b>89</b>	<b>259</b>	<b>108</b>	<b>1</b>	<b>121</b>	<b>46</b>	<b>773</b>
Parcels Available for Construction	132	83	247	108	1	121	45	<b>737</b>
Parcels Pending Release for Construction	17	6	12	0	0	0	1	<b>36</b>



## 10. Utilities

### Description

The METRO Utility Manager is responsible for managing and overseeing the relocation of all privately owned utilities (irrigation, natural gas, nitrogen lines, fiber optics, power, private force mains, private communication lines, private irrigation lines, cable television, and telecommunications) necessary to allow LRT construction, including those with and without prior rights. Utilities with prior rights include SRP Power, SRP Irrigation, Qwest (local and long distance), Southwest Gas, WiTel, MCI and APS. Relocation of privately owned utilities is performed by private utility companies and their contractors, preferably prior to beginning LRT construction. Relocation of publicly-owned utilities is accomplished within the civil construction contracts by METRO contractors.

### Progress

- Line Section 1
  - Solutions for utility issues are addressed weekly in the LS1 Utilities Coordination meeting held at the Kiewit field office
  - Kiewit continues to work on Salt River Project Irrigation (SRPI) facilities.
  - The abandonment at the historic well site on the south west corner of 19<sup>th</sup> Avenue and Camelback Road is now beginning to impact the contractor's schedule. The old well site cannot be disturbed until drilling operation begins. This activity is tentatively scheduled for the week of May 7, 2007, when the abandonment of the old well site will start. SRP is taking several steps to expedite the abandonment process.
  - SRP - Power Job Number KJC-3002 is ready to mobilize crews to start trenching/pulling wire on the north side of Camelback Road from 19<sup>th</sup> Avenue to 15<sup>th</sup> Avenue in May. SRP is waiting on Kiewit to move traffic to the south side which will allow SRP to start on the north side.
  - Kiewit continues trenching along the west side of 19th Avenue from Camelback Road to Missouri Avenue (SRP Job Number KJC-5001 and KJC-3000). SRP is ready to mobilize crews to start pulling/splicing new cable. Once SRP is done Qwest and Cox Communication can start pulling/splicing new cable/fiber.
  - SRP Power Job Number KJC-5000 and KJC-3001 for joint trench along the west side of 19th Avenue from Missouri Avenue to Bethany Home Road is tentatively scheduled to start the first part of May 2007.
  - Qwest and Cox continue moving pedestals/closures along 19<sup>th</sup> Avenue at various locations.
  - Cox needs to pull/splice fiber at 17<sup>th</sup> Avenue and 15<sup>th</sup> Avenue and Camelback Road.



- Line Section 2
  - Utility conflicts and coordination issues are being addressed on a case-by-case basis in the field. Utility meetings are now being held bi-weekly in the Herzog office. These meetings increase contractor communication and utility company accountability.
  - SRP Water Irrigation facilities at Central Avenue and Encanto Boulevard will be tentatively finished by the LS2 Contractor June of 2007.
  - APS 230 kV spare pipes installation at Central Avenue and Encanto Boulevard is done.
  - METRO has started a punch list for utility companies to address.
  - The project team continues to work with APS, COP and Herzog on design modifications for street lights and traffic signals. City of Phoenix, METRO and APS representatives have been instrumental in facilitating the necessary changes of this work.
- Line Section 3
  - Utility conflicts and coordination issues are being addressed on a case by case basis in the field.
  - METRO has started a punch list for utility companies to address.
  - The project team continues to work with APS, COP, METRO and Archer Western representatives to implement design modifications on street lights and traffic signals. The weekly coordination meeting is held and has been instrumental in facilitating the necessary changes of this work.
- Line Section 4
  - Utility conflicts and coordination issues are being addressed on a case by case basis in the field.
  - METRO has started a punch list for utility companies to address the removal of power poles, abandoned aerial cables, etc...
  - The Installation of microduct was successfully completed at Washington Street from Priest Drive to east of Center Parkway to 44<sup>th</sup> Street.
- Line Section 5
  - Solutions for utility issues are addressed weekly in the LS5 Utilities Coordination meeting. These meetings increase contractor communication, and utility company accountability.
  - The Union Pacific Railroad Signal Arm and Cantilever on the eastside of UPRR Tracks must be removed. This removal is scheduled for the week of June 4, 2007.
  - The Contractor continues to face challenges with existing utilities along the alignment eastward from Apache Boulevard and Smith to the Price Freeway. Significant



lengths of underground of SWG main must be lowered to meet clearance requirements by City of Tempe; SWG relocations were not previously noted in the drawings, or accommodated in the schedule. The Agency is working to expedite these third-party utility relocations.

- SRP Job Numbers KJC-3008, KJC-5011, KJC-3011 are all 99 percent complete. This work is expected to be completed first part of May.
- SRP Job Number KEC-5000 is approximately 85 percent complete with all trenching on the north side of Main Street and the crossing completed. Trenching on the south side of Main Street has started working from east to west. South side trenching was delayed by City of Mesa traffic control and SSWJV work.
- SRP Water (Irrigation) relocation has started on Apache Boulevard and Rivers Drive. SRP has mobilized three crews to expedite relocation.
- SWG gas main that was shallow on Apache Boulevard and Smith-Martin is done.
- An additional shallow gas main has been found on Apache Boulevard and River Drives. SWG is expediting the lowering of the gas main and tentatively has it scheduled to be complete the second week of May 2007.
- Traction Power Substations
  - APS will write Legal and Easement for Traction Power Substations. Number 4, 6, 8, 10 and 11.
    - Easements for Number 5 and 7 were identified in the Right-of-Way. No easement is required.
  - SRP and METRO accepted an Agreement for Electrical Services (AES) for Traction Power Substations Number 1, 2, 12, and 14.
  - TPSS Number 9, 15 and Signal Building Number 4 are energized.
- New Electric Services Accounts
  - APS and SRP electrical accounts for TPSS are set up.
  - APS and SRP electrical service accounts are in the process of being established for Transit Center, Park and Ride, Station Platforms and Signal Communications Building.

### **Cost and Schedule – Variance Analysis**

- Costs incurred to-date for prior rights utilities are within the Utility Budget. We are concerned that the budget for SRP Irrigation and SRP Power will run over budget due to material cost and traffic control cost increases.

### **Issues and Solutions**

- Utility relocation is a big concern for this project to be on schedule. METRO has requested that utility companies accelerate their relocation, even if it includes providing additional resources.

- Define remaining APS and SRP Power easements for TPSS Site Number 1, 2, 4, 6, 8, 10, 11, 12 and Number 14.

### Construction Photographs



APS installing spare 230 kV pipes on Central Avenue and Encanto Boulevard in Line Section 2



APS installing spare 230 kV pipes and manhole on Central Avenue and Encanto Boulevard in Line Section 2



SWG lowering 600-feet of gas main on Apache Boulevard at Smith-Martin in Line Section 5



SRP Water – relocation irrigation pipes east and west of Rivers on Apache Boulevard in Line Section 5

**Prior Rights Utility Cost Status  
Federal 5309 Project**

	Percent	Budget	Earned	Cost to Date	Forecast
Line Section 1	61%	\$6,234,834	\$3,785,524	\$7,215,248	\$8,316,135
Line Section 2	85%	\$1,905,951	\$1,623,855	\$606,057	\$1,454,881
Line Section 3	94%	\$3,067,860	\$2,885,575	\$2,813,629	\$3,130,568
Line Section 4	98%	\$4,780,945	\$4,662,248	\$2,796,939	\$5,141,982
Line Section 5	83%	\$7,621,806	\$6,331,991	\$9,435,646	\$12,466,501
Maintenance Storage Facility	100%	\$320,230	\$320,230	\$439,223	\$439,223
Town Lake Bridge	100%	\$1,150,000	\$1,150,000	\$808,997	\$850,348
TPSS	12%	\$4,540	\$540	\$540	\$4,540
<b>Sub Total</b>	<b>83%</b>	<b>\$25,086,166</b>	<b>\$20,759,963</b>	<b>\$24,116,279</b>	<b>\$31,804,178</b>
Contingency	0%	\$1,293,126	\$0	\$0	\$463,832
<b>Total Prior Rights Utilities</b>	<b>79%</b>	<b>\$26,379,292</b>	<b>\$20,759,963</b>	<b>\$24,116,279</b>	<b>\$32,268,010</b>

## 11. Architecture

### Public Art



### Description

Public art projects will be a part of all Station Finishes listed in Section 4.1.3 with the exception of the platform at 19<sup>th</sup> Avenue and Camelback. Additional artworks will be placed at the 19<sup>th</sup> Avenue and Camelback Park-and-Ride and at the Tempe Town Lake Bridge. Artworks will include stand alone sculptures, integrated architectural finishes, entryway canopies, lighting, paving and landscaping elements. Artists will install their work in conjunction with the Station Finishes, Park-and-Ride, and Town Lake Bridge construction schedule.

### Progress

- Line Section 1
  - Montebello: Installation issues resolved, waiting for new shop drawings from artist.
  - Camelback/7<sup>th</sup> Avenue: Test pavers from Advanced Terrazzo are expected in June.
- Line Section 2
  - Camelback: Stone and steel fabrication is almost complete and art is in storage.
  - Osborn: Bronze footprint casting complete; water-jet-cut pavers in progress.
  - Encanto: Bronze sculpture and boxes are carved and waiting to be cast, the entry way, Canterra Stone, is blocked out.



- Line Section 3
  - McDowell: Approximately one half of the bronze books are cast.
  - Van Buren: Fabrication is 90 percent complete.
  - Central/Washington – 1st Avenue/Jefferson: Porcelain tile production commences upon field measurements following station steel erection.
  - Third Street: Steel fabrication begun.
  - Twelfth Street: Paver fabrication is complete, and artist will be coming out for a community meeting to preview his hand-painted photo tiles and his metal railing designs.
  - Twenty-Fourth Street: Steel panel fabrication complete, and final bronze fabrication is ongoing.
- Line Section 4
  - Forty-Fourth Street: Lighting issues are being resolved.
  - Priest/Washington: Fabrication has begun.
- Tempe Town Lake
  - Artwork has been completed except for the final programming of the bridge lighting. The artist will be coming out in July for programming in conjunction with the 4th of July bridge light-up.
- Line Section 5
  - Mill/3rd Avenue: The lighting issues have been resolved, and the art canopies are completed.
  - College/5th Avenue: The bronze models are three-fourths completed.
  - Apache Boulevard Stations – Sculpture: Bronze models for “Hands” are approximately 50 percent complete. The hands will not be ready for installation until late summer 2008 due to a complex casting process that can only be done during the winter months.
  - Sycamore/Main: The invoice and lighting issues have been resolved.
- General Progress
  - Working with Archer Western Contractors (AWC) to resolve the foundation installation and scheduling issues.
  - Working with artists and GEC to resolve the outstanding request for information issues.

### Cost and Schedule – Variance Analysis

- Working with AWC to install artwork at the Priest/Washington station and the Dorsey/Apache station, this is out of sequence with their construction schedule due to art fabrication delays. Public Art activities remain within budget.

### Issues and Solutions

- Continuing to monitor contract schedule issues. Except for the stations noted above, artwork installation is on schedule within the latest AWC construction schedule.

### Construction Photos



Apache/Dorsey  
“Hands” sculpture in fabrication



Apache/Dorsey  
“Hands” sculpture in fabrication

## Station Finishes



### Description

The METRO Station Finishes (SF) Contract includes twenty-eight stations, four transit centers and installation of art pieces by twenty-seven artists. Amenities within the fully accessible stations include shading trellises with overhead canopies, irrigated trees and landscape, patron seating and leaning rails, drinking fountains, map cases, directional signage and trash receptacles. Types of art pieces include stand-alone sculptures, paving treatments, lighting treatments and integrated art within the station structures.

The SF architects prepared the construction drawings in five separate packages that correspond to each civil line section. These documents along with an art reference volume have been combined together and are currently under construction by Archer Western Contractors, the METRO Station Finishes Contractor.

System elements that are located in the station areas include surveillance cameras (CCTV), a public address system (PA), emergency call boxes (ECB), variable message boards (VMB) automated ticket vending machines (TVM) and Stand-alone Validators (SAV).

### Progress

- Montebello/19<sup>th</sup> Avenue Transit Center: Montebello Ave. was re-opened to traffic on April 18, 2007. Work continues on the walkways at 19<sup>th</sup> Avenue/Montebello Transit Center south of the realigned Montebello Avenue. Spectrum Mall management is being regularly updated on METRO construction activities in the vicinity of their facility.
- Central Avenue and Camelback Transit Center: The Contractor re-mobilized at this location on April 28, 2007. Work on underground utilities has resumed.



- Washington and 44<sup>th</sup> Street Transit Center: Construction of curb/gutter, grading and site utility work is ongoing. Archer Western and Sundt/Stacey Witbek, (Line Section 4 Contractor), are continuing to coordinate access and sequencing of their respective work.
- Sycamore and Main Street Transit Center: Installation of underground utilities is ongoing. Contractor completed installation of structural steel for the bus shelters. Site grading and curb/gutter construction is underway.
- Structural steel installation has been completed at 1<sup>st</sup> Avenue/Van Buren, Central Avenue/Van Buren, Central Avenue/Washington, and 3<sup>rd</sup> Street/Jefferson Stations. Electrical and communications cabinet has been set at the 1<sup>st</sup> Avenue/Van Buren Station. Electrical and other utility work is on-going at the aforementioned stations.
- METRO has received an approved amendment from the City of Mesa Building Safety Office to the current Sycamore and Main Street Transit Center construction permit. This includes the Sycamore and Main Street Station platform elements.
- A total of fifteen station foundations have been substantially completed by Line Section Contractors and made available to the Station Finishes Contractor for Area Access.
- Platform and Operations Facility structural steel shop drawings continue to be submitted and reviewed. Steel deliveries and installation for station/bus shelter installations began March 14, 2007.
- Masonry block work of the Operator Building (OPF-4) at the Sycamore and Main Street Transit Center is underway.
- A proposal for rotating concrete pads at various stations for the Ticket Vending Machines (TVM's) due to further revisions in machine design and required maintenance access is under review from Archer Western by METRO. Provisions for new Stand-alone Validator (SAV) concrete pads and power connections to the system for six stations are also included in this upcoming change order.
- The pad locations at all other stations have been notated in Agency approved design sketches and are ready for inclusion in another Change Notice to the SF Contractor.

### **Cost and Schedule – Variance Analysis**

- A revised schedule has been prepared and reviewed by METRO. Substantial agreement has been reached between METRO and Archer Western Contractors, and the revised schedule is nearly ready to be implemented.

### **Issues and Solutions**

- Building department comments related to received Station Finishes Permit approvals from the Cities of Phoenix and Mesa resulted in additional changes at all Transit Center sites. METRO and Archer Western are continuing to resolve any potential cost and schedule impacts due to these Contract revisions.

**Construction Photographs**



19<sup>th</sup> Avenue/Montebello Transit Center Bus Shelter Footing Placement.



Light Fixture Frame Installation at Central Avenue / Van Buren



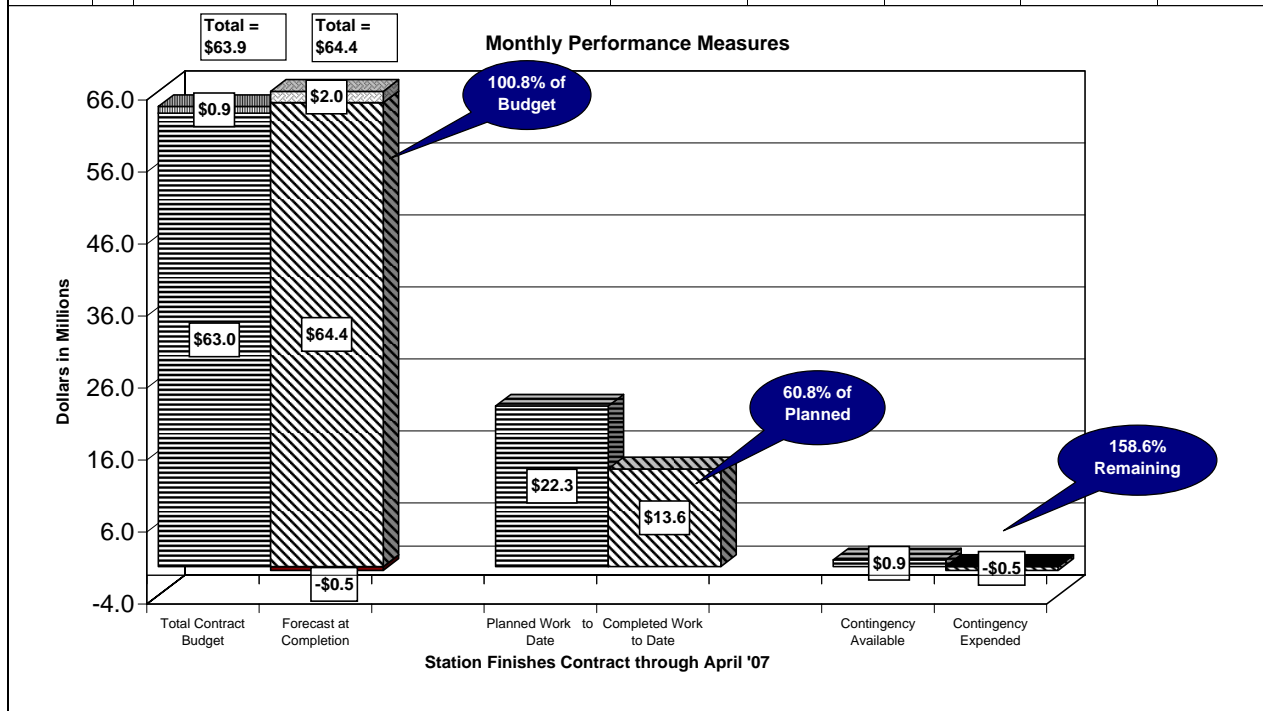
Sycamore / Main Street Transit Center



3<sup>rd</sup> Street / Jefferson Steel Installation

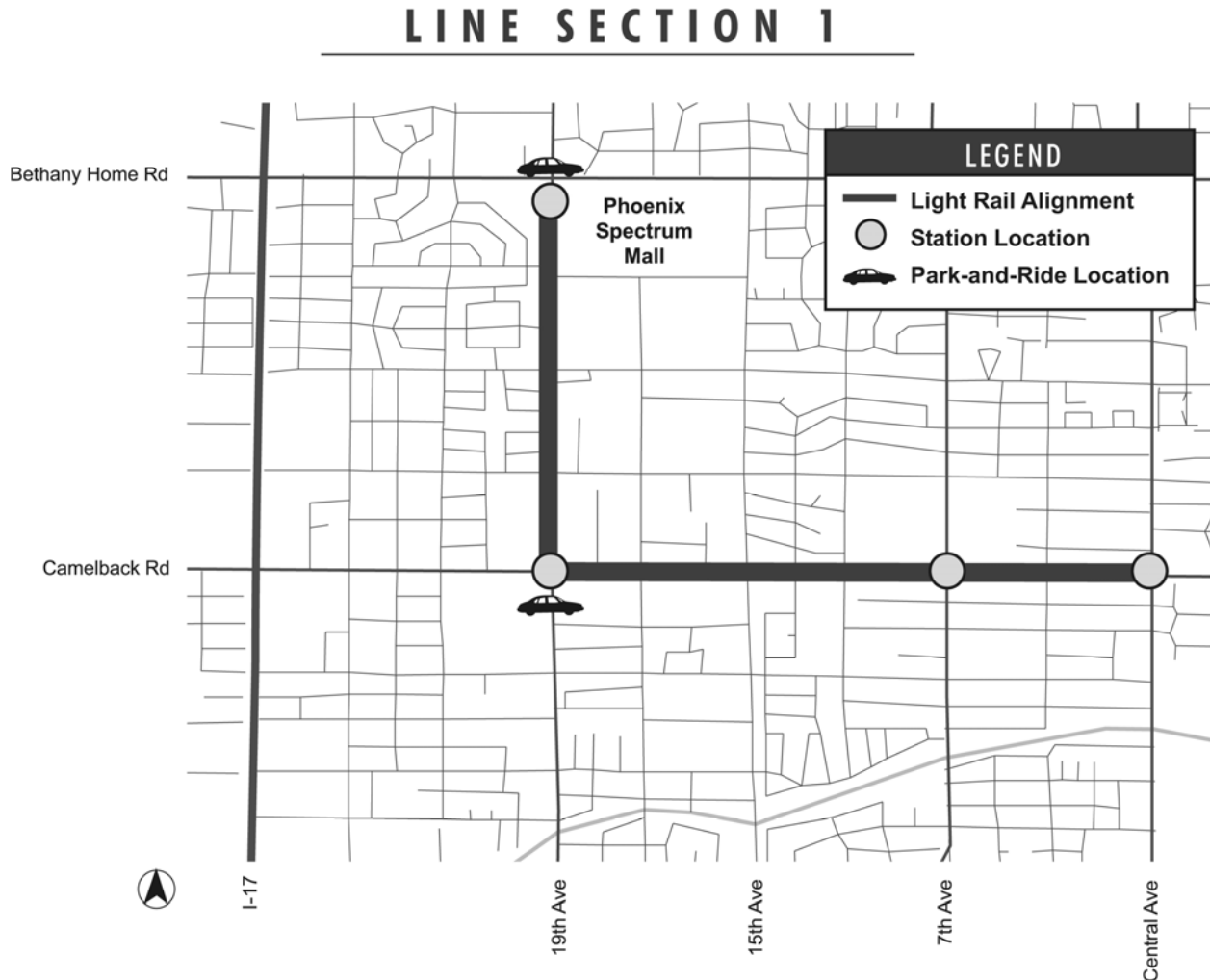


<b>Description:</b>		<b>3.2.1 Station Finishes</b>		
<b>PE/PA:</b>				
<b>Contractor:</b>		<b>Archer Western Contractors</b>		
<b>Resident Architect:</b>		<b>Doaa Aboul-Hosn</b>		
<b>Data Through:</b>		<b>March 31, 2007</b>		
<b>Cumulative</b>		<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Original Budget	\$52,985,000	\$9,988,000	\$62,973,000
2	Executed Change Orders	-\$736,812	\$198,873	-\$537,939
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$52,248,188	\$10,186,873	\$62,435,061
5	Work Scheduled	\$18,700,372	\$3,597,701	\$22,298,073
6	Work Earned	\$10,418,368	\$3,139,104	\$13,557,472
7	Actual Expenditures	\$10,410,962	\$3,133,818	\$13,544,780
8	Forecast to Complete Base (4-7)	\$41,837,226	\$7,053,055	\$48,890,281
9	Change Orders Pending Execution	\$24,252	\$1,950,712	\$1,974,964
10	Forecast at Completion (7+8+9)	\$52,272,440	\$12,137,585	\$64,410,025
11	Percent Budget Expended (7/4)	19.9%	30.8%	21.7%
12	Percent Planned (5/4)	35.8%	35.3%	35.7%
13	Earned Percent Complete (6/4)	19.9%	30.8%	21.7%
14	Schedule Performance (6/5)	0.56	0.87	0.61
15	Cost Performance (6/7)	1.00	N/A	1.00
16	Contingency Budget	\$546,000	\$371,603	\$917,603
17	Remaining Contingency	\$1,282,812	\$172,730	\$1,455,542
18	Percent Contingency Remaining (17/16)	234.9%	46.5%	158.6%
<b>Period</b>				
1	Original Budget	No period data available due to re-baselining of Station Finishes schedule.		
2	Executed Change Orders			
3	Budget Transfers			
4	Current Budget (1+2+3)			
5	Work Scheduled (Cumm - Last Period)			
6	Work Earned (Cumm - Last Period)			
7	Actual Expenditures (Cumm - Last Period)			
8	Forecast to Complete Base (4-7)			
9	Change Orders Pending Execution			
10	Forecast at Completion (7+8+9)			
11	Percent Budget Expended (7/4)			
12	Percent Planned (5/4)			
13	Earned Percent Complete (6/4)			
14	Schedule Performance (6/5)			
15	Cost Performance (6/7)			
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



## 12. Facilities

### Line Section 1



### Description

Line Section 1 is 2.27 miles in length, and begins on 19th Avenue south of Bethany Home Road to a point west of the Central Avenue and Camelback Road Station. The construction work in this contract includes demolition, relocation of public utilities, roadway and drainage modifications, systems ductbank installation to the substation site interface, station foundations, signing and marking, irrigation, landscaping, et cetera.

There are three stations in Line Section 1. They are at 19th Avenue and Montebello, 19th Avenue and Camelback Road, and 7th Avenue and Camelback Road.

### Progress

- Asphalt paving has been successfully completed on the south side of Camelback from 7<sup>th</sup> Avenue to 19<sup>th</sup> Avenue. The plan is to physically switch traffic to the south side in mid-May.



- Kiewit completed the 24-inch sewer line on 19<sup>th</sup> Avenue between Missouri and Bethany Home Road. During April, the crew completed the sewer work at the 19<sup>th</sup> and Camelback intersection and will continue working north from Camelback heading toward Missouri to tie in to where the work began.
- The 7<sup>th</sup> and Camelback station foundation work has been completed and a walkthrough was performed on March 30, 2007. Subsequently, substantial completion was issued to Kiewit on April 2nd.
- Traffic control continues to be seamlessly combined between all participants on the project, and as a consequence has been successful with few formal complaints from the various stake holders or the traveling public. Kiewit has restructured traffic flow on both Camelback and 19th Avenue to one lane in each direction and the COP has agreed to allow pre-approved nighttime full closures of the Camelback and 19th Avenue intersection. This traffic restructuring is ongoing and coordination with COP continues to work satisfactorily. COP Transit has rerouted the Buses so that they no longer stop at the intersection of 19<sup>th</sup> Avenue and Camelback Road and they have suspended bus operations on 19<sup>th</sup> Avenue.
- The 19<sup>th</sup> and Camelback Station work has begun in April and is continuing as planned. It is anticipated that substantial completion will be issued by the end of May or early June to the contractor.
- Guideway and systems civil work on Camelback is virtually complete from Central, at the beginning of eastern limits of the job, west to 7<sup>th</sup> Avenue.

### **Cost and Schedule – Variance Analysis**

- The revised project schedule should be ready for submittal by the end of May. An interactive planning session will occur mid to end of May. It is anticipated that due to the re-sequence all interim track milestones will hit the dates as required by the unilateral Change Order.

### **Issues and Solutions**

- Presently there are no known issues that should adversely impact the revised contract completion date. At this time it appears that the real estate, cost-to-cure, and utility easement concerns that have been noted as major past concerns no longer pose a major problem for future construction operations.

**Construction Photos**



PandCS performing cathodic protection on 8" waterline



Great Western performing Rebar work on Camelback and 7th Avenue



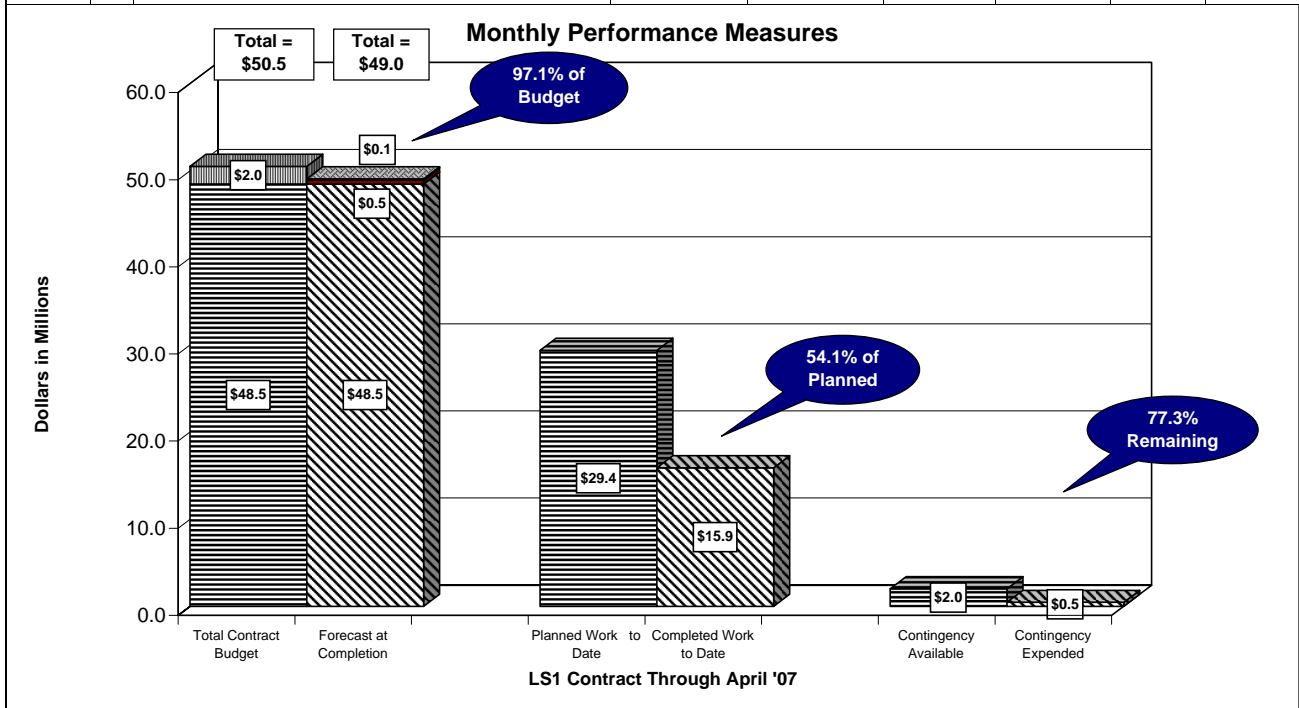
Contractor performing rebar tying on Camelback



Concrete guideway placement between 17<sup>th</sup> and 19<sup>th</sup> Avenues

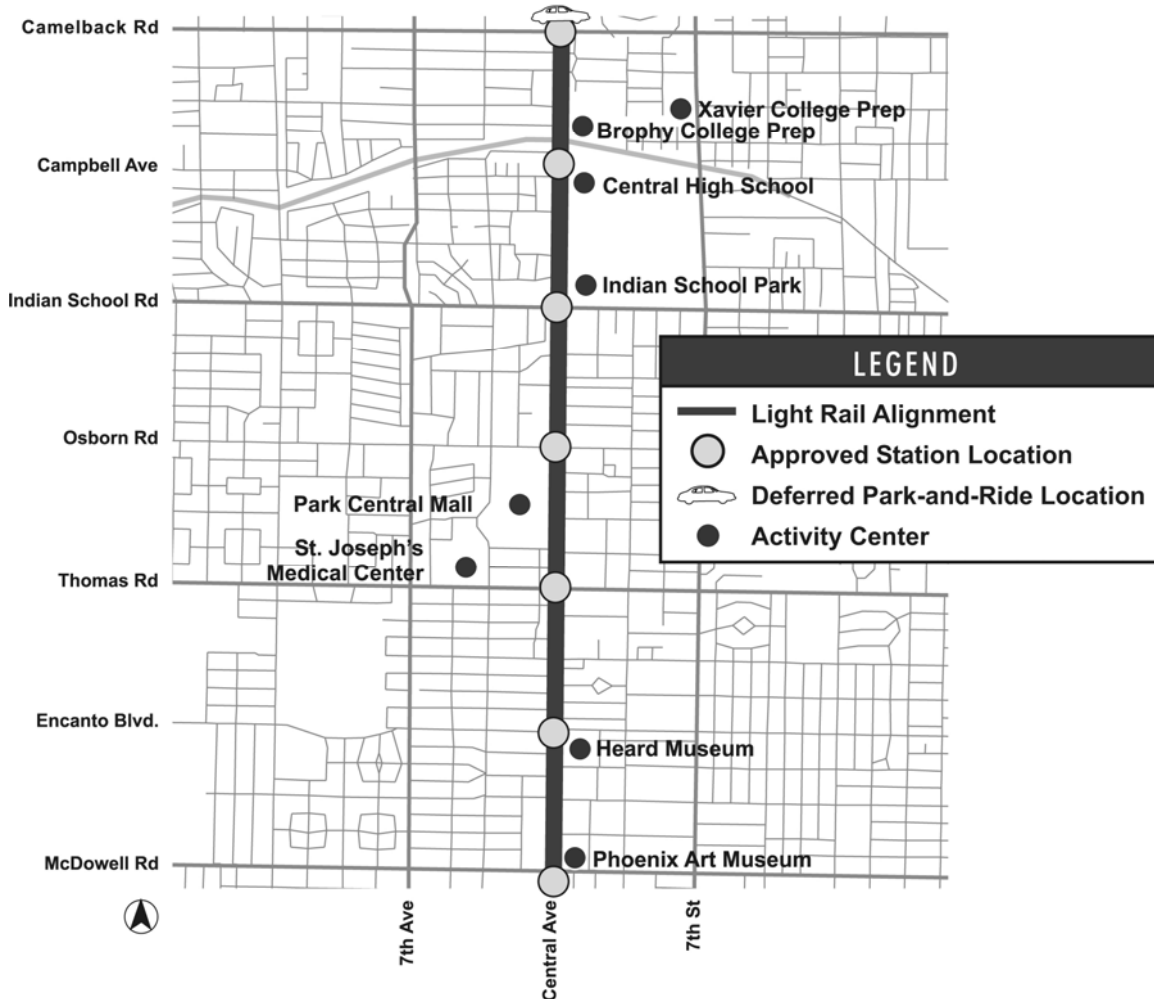


<b>Description:</b>		3.1.1 Line Section 1		
<b>PE/PA:</b>		Alvin Livingstone		
<b>Contractor:</b>		Kiewit Western Co.		
<b>Resident Engineer:</b>		Bill Blane		
<b>Data Through:</b>		February 28, 2007		
		5309	CNPA	Total
<b>Cumulative</b>				
1	Budget	\$37,951,658	\$10,533,342	\$48,485,000
2	Executed Change Orders	\$454,810	\$0	\$454,810
3	Budget Transfers	\$0	\$565,351	\$565,351
4	Current Budget (1+2+3)	\$38,406,468	\$11,098,693	\$49,505,161
5	Work Scheduled	\$22,549,193	\$6,841,012	\$29,390,205
6	Work Earned	\$13,141,391	\$2,757,701	\$15,899,092
7	Actual Expenditures	\$12,929,236	\$2,757,637	\$15,686,873
8	Forecast to Complete Base (4-7)	\$25,477,232	\$8,341,056	\$33,818,288
9	Change Orders Pending Execution	\$128,759	-\$17,505	\$111,254
10	Forecast at Completion (7+8+9)	\$38,535,227	\$11,081,188	\$49,616,415
11	Percent Budget Expended (7/4)	33.7%	24.8%	31.7%
12	Percent Planned (5/4)	58.7%	61.6%	59.4%
13	Earned Percent Complete (6/4)	34.2%	24.8%	32.1%
14	Schedule Performance (6/5)	0.58	0.40	0.54
15	Cost Performance (6/7)	1.02	1.00	1.01
16	Contingency Budget	\$1,963,056	\$44,811	\$2,007,867
17	Remaining Contingency	\$1,508,246	\$44,811	\$1,553,057
18	Percent Contingency Remaining (17/16)	76.8%	100.0%	77.3%
<b>Period</b>				
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	\$25,000	\$0	\$25,000
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$38,406,468	\$11,098,693	\$49,505,161
5	Work Scheduled (Cumm - Last Period)	\$1,625,304	\$431,362	\$2,056,666
6	Work Earned (Cumm - Last Period)	\$1,288,028	\$1,072,508	\$2,360,536
7	Actual Expenditures (Cumm - Last Period)	\$581,375	\$1,071,203	\$1,652,578
8	Forecast to Complete Base (4-7)	\$37,825,093	\$10,027,490	\$47,852,583
9	Change Orders Pending Execution	\$103,759	-\$224,000	-\$120,241
10	Forecast at Completion (7+8+9)	\$38,510,227	\$10,874,693	\$49,384,920
11	Percent Budget Expended (7/4)	1.5%	9.7%	3.3%
12	Percent Planned (5/4)	4.2%	3.9%	4.2%
13	Earned Percent Complete (6/4)	3.4%	9.7%	4.8%
14	Schedule Performance (6/5)	0.79	2.49	1.15
15	Cost Performance (6/7)	0.00	0.00	0.00
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



Line Section 2

**LINE SECTION 2**



**Description**

Line Section 2 begins at a point on Camelback Road just west of the Central Avenue/Camelback Road Station, and continues south on Central Avenue to a point approximately 200 feet north of the Central Avenue/McDowell Road intersection. The construction work in this contract includes demolition, relocation of public utilities, roadway improvements, drainage modifications, systems ductbank installations, station foundations, installation of systems ductbank and conduits, streetlights, traffic signals, OCS pole foundations, preparation of trackbed, and installation of embedded track. It also includes replacement of the Grand Canal Bridge on Central Avenue.

This Line Section will have six stations at the following locations: Central/Camelback, Central/Campbell, Central/Indian School, Central/Osborn, Central/Thomas and Central/Encanto.



## Progress

- Herzog continues to install infrastructure from Glenrosa to McDowell in various states of completion. Storm drainage and catch basin installation/relocations, and sanitary sewer installations from Indian School to Virginia continue. Change Orders were issued to Herzog for acceleration of water mains and storm drain installation between Osborn Road and McDowell Road. This work is approximately 80 percent complete.
- Herzog, GEC, and Brown and Caldwell developed the redesign for the amended sewer installation at Mitchell per the City's request, and HCC has started installation. Herzog completed the additional water main installations at Indian School intersection and continues with installations from McDowell to Thomas.
- Herzog placed 2370-feet this month for a total of 4980-feet of guideway to date, and continue layout of additional guideway toward Camelback Road, through the Camelback Station, forming bath tubs for special track work. Herzog continues to work on demolition for guideway grading between Indian School and Columbus.
- Herzog has completed the Campbell Station foundation. They have also poured the North and Southbound Camelback Stations, and screen walls.
- Herzog continues to work on the roadway widening, clear/grub, demolition of curb/gutter, sidewalks and placing new curb and gutter, sidewalks, walls, water services, street lights and traffic signals from Camelback Road south to McDowell.
- Herzog continues to work on installing sidewalk, sandstone borders, tree wells, and are currently working on the installation of landscaping, relocation of Palm Trees, planting trees and shrubs at various locations. They also continue to amend existing irrigation systems to facilitate the new irrigation system interface.

## Cost and Schedule – Variance Analysis

- The contractor is developing a new schedule to reflect re-sequencing the work to support overall Program Milestones.

## Issues and Solutions

- Utility conflicts continue to occur. METRO is working diligently with Herzog and the City in a proactive coordinated effort to resolve impacts in an expedited manner.
- METRO and Herzog are discussing a re-sequencing of infrastructure to improve the schedule for guideway turnover.
- Several major design adjustments, including waterline conflicts from Indian School to Encanto remain a challenge on LS2. METRO Design is working with the City of Phoenix to resolve ongoing conflicts. Variances have been issued and Change Notices issued to resolve some of the conflicts.

**Construction Photos**



Installing storm drain off set Manhole north of Thomas



Installing hardscape sandstone pavers at 3800 Central



Placing sidewalk North of Campbell



Placing Guideway



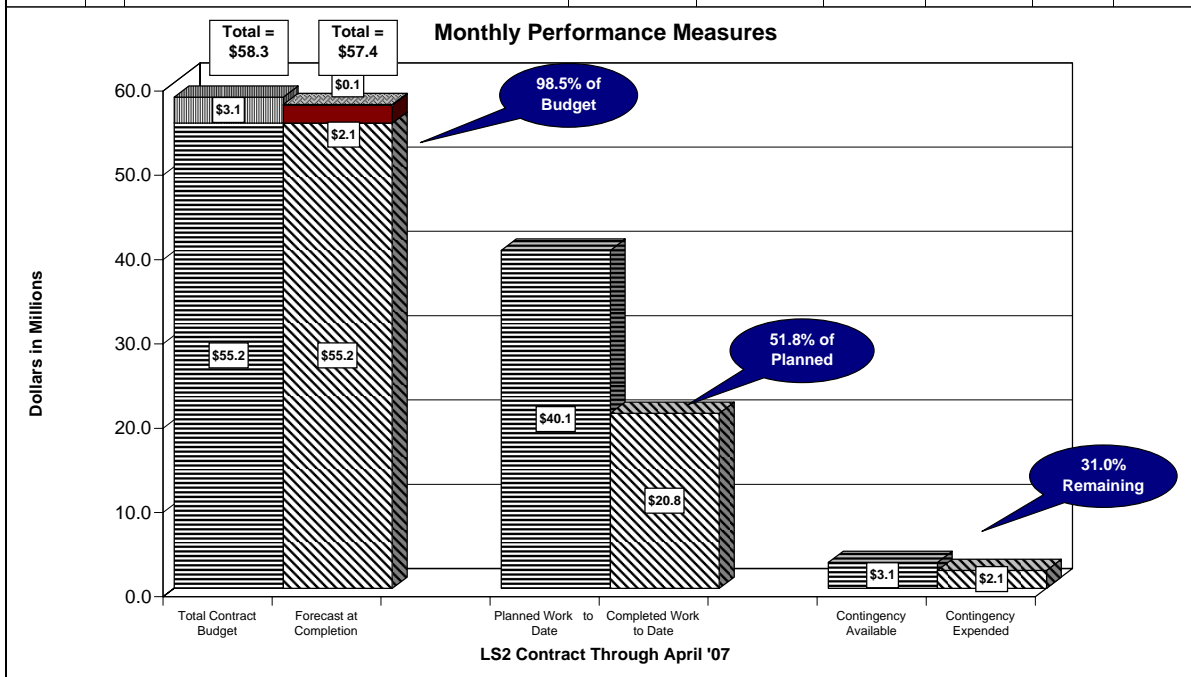
Installing Tapping sleeve onto existing water main



Backfill around off-set manhole NW corner of Thomas

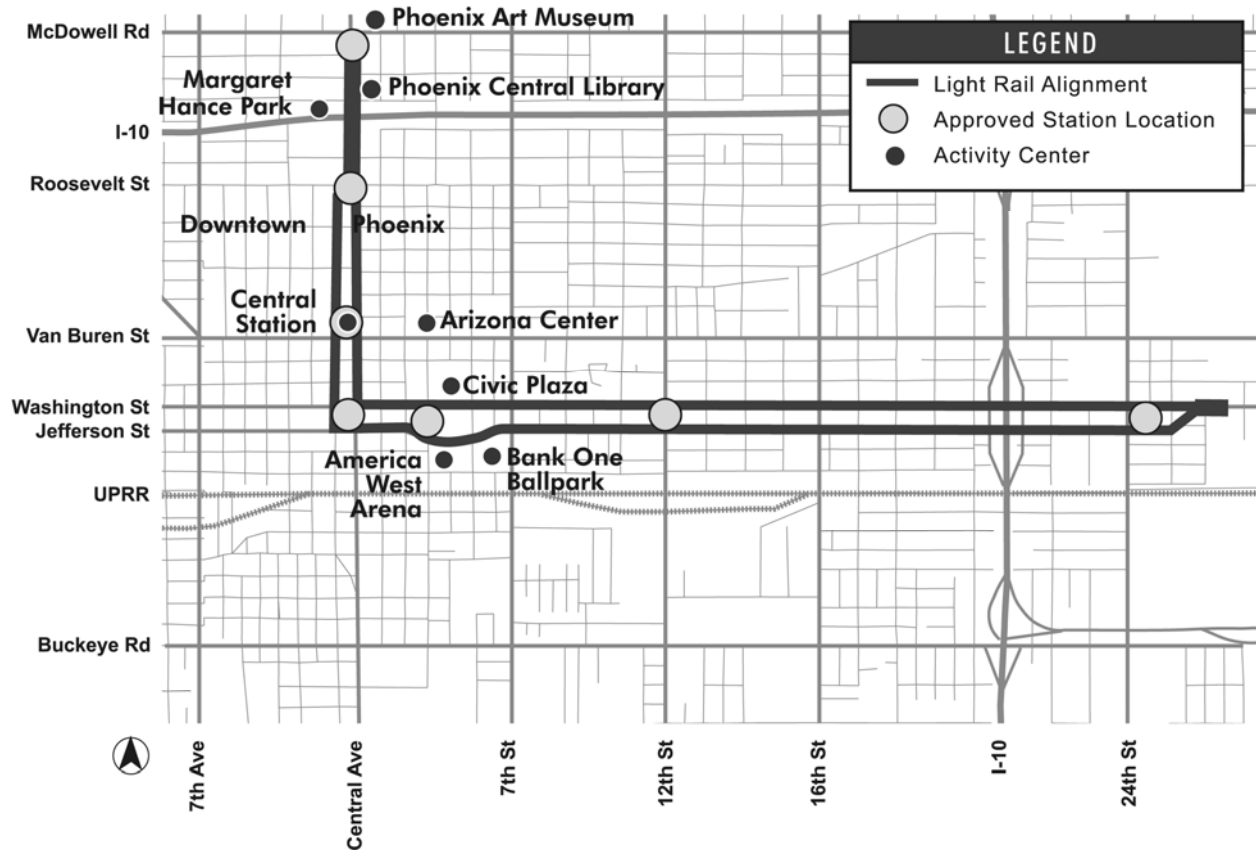


<b>Description:</b>		3.1.2 Line Section 2		
<b>PE/PA:</b>		Alvin Livingstone		
<b>Contractor:</b>		Herzog Contracting Corporation		
<b>Resident Engineer:</b>		Marty Spong		
<b>Data Through:</b>		March 28, 2007		
<b>Cumulative</b>				
		5309	CNPA/Other	Total
1	Budget	\$48,425,124	\$6,762,248	\$55,187,372
2	Executed Change Orders	\$1,789,046	\$65,668	\$1,854,714
3	Budget Transfers		\$257,801	\$257,801
4	Current Budget (1+2+3)	\$50,214,170	\$7,085,717	\$57,299,887
5	Work Scheduled	\$34,659,675	\$5,434,571	\$40,094,246
6	Work Earned	\$18,302,545	\$2,461,813	\$20,764,358
7	Actual Expenditures	\$16,994,791	\$2,621,296	\$19,616,087
8	Forecast to Complete Base (4-7)	\$33,219,379	\$4,464,421	\$37,683,800
9	Change Orders Pending Execution	\$80,364	-\$7,877	\$72,487
10	Forecast at Completion (7+8+9)	\$50,294,534	\$7,077,840	\$57,372,374
11	Percent Budget Expended (7/4)	33.8%	37.0%	34.2%
12	Percent Planned (5/4)	69.0%	76.7%	70.0%
13	Earned Percent Complete (6/4)	36.4%	34.7%	36.2%
14	Schedule Performance (6/5)	0.53	0.45	0.52
15	Cost Performance (6/7)	1.08	0.94	1.06
16	Contingency Budget	\$3,050,401	\$13,293	\$3,063,694
17	Remaining Contingency	\$1,261,355	\$13,293	\$951,179
18	Percent Contingency Remaining (17/16)	41.4%	100.0%	31.0%
<b>Period</b>				
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	\$810,399	\$0	\$810,399
3	Budget Transfers	\$0	\$51,670	\$51,670
4	Current Budget (1+2+3)	\$50,214,170	\$7,085,717	\$57,299,887
5	Work Scheduled (Cumm - Last Period)	\$2,834,725	\$402,852	\$3,237,577
6	Work Earned (Cumm - Last Period)	\$2,599,889	\$522,873	\$3,122,762
7	Actual Expenditures (Cumm - Last Period)	\$1,261,478	\$750,307	\$2,011,785
8	Forecast to Complete Base (4-7)	\$48,952,692	\$6,335,410	\$55,288,102
9	Change Orders Pending Execution	-\$729,699	-\$119,758	-\$849,457
10	Forecast at Completion (7+8+9)	\$49,484,471	\$6,965,959	\$56,450,430
11	Percent Budget Expended (7/4)	2.5%	10.6%	3.5%
12	Percent Planned (5/4)	5.6%	5.7%	5.7%
13	Earned Percent Complete (6/4)	5.2%	7.4%	5.4%
14	Schedule Performance (6/5)	0.92	N/A	0.96
15	Cost Performance (6/7)	0	0	0
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			
Total Contract Budget		\$58.3		
Total Forecast to Complete		\$57.4		
Percent of Budget		98.5%		
Percent of Planned		51.8%		
Percent Contingency Remaining		31.0%		



Line Section 3

**LINE SECTION 3**



**Description**

Line Section 3 is 4.29 miles in length with approximately eight miles of in-street track. It begins at Central Avenue and McDowell Road and extends south on Central Avenue to Portland Avenue where the line splits into single-track alignment on the one-way streets of Central Avenue and 1st Avenue. It continues south on one-way 1st Avenue to Jefferson Street and then east on one-way Jefferson Street to its end at 26th Street. It continues on one-way Central Avenue to Washington Street and then east on one-way Washington Street to 26th Street. The eastbound leg is on 1st Avenue and Jefferson Street and the westbound leg is on Washington Street and Central Avenue. The Section traverses downtown Phoenix crossing the Deck Park Bridge and passes near America West Arena, Bank One Ballpark, the Symphony Hall, Civic Plaza and Arizona Science Center.

The work anticipated in this construction contract includes demolition, relocation of public utilities, corrosion control facilities, roadway and drainage modifications, station platform foundations, installation of systems duct bank and conduits, streetlights, traffic signals, OCS pole foundations, irrigation, landscaping, traffic signing, pavement marking, preparation of track bed and installation of embedded track. It also includes modifications of existing structures at the Deck Park Bridge, Renaissance II Garage, Arizona Science Center/CPEG Pedestrian Bridge and ADOT I-10 Washington-Jefferson Interchange.



The seven stations with 13 platforms located within Line Section 3 are McDowell Road/Central Avenue, Roosevelt Street/Central Avenue, Roosevelt Street/1st Avenue, Van Buren Street/Central Avenue, Van Buren Street/1st Avenue, Washington Street/Central Avenue, Jefferson Street/1st Avenue, 3rd Street/Washington Street, 3rd Street/Jefferson Street, 12th Street/Washington Street, 12th Street/Jefferson Street, 24th Street/Washington Street and 24th Street/Jefferson Street.

For Right-of-Way availability and order of construction or sequencing, Line Section 3 has been divided into 15 segments. The segments are paired on the one-way street couplets with Segments 1 and 2 extending from Polk to Washington on Central and 1<sup>st</sup> Avenue, 3 and 4 from 1<sup>st</sup> Avenue to 3<sup>rd</sup> Street on Washington and Jefferson, 5 and 6 from 3<sup>rd</sup> Street to 9<sup>th</sup> Street on Washington and Jefferson, 7 and 8 from Portland to Polk on Central and 1<sup>st</sup> Avenue, 9 and 10 from 9<sup>th</sup> Street to 14<sup>th</sup> Street on Washington and Jefferson, 11 and 12 from 14<sup>th</sup> to 20<sup>th</sup> Street on Washington and Jefferson, 13 and 14 from 20<sup>th</sup> to 26<sup>th</sup> Street on Washington and Jefferson, and Segment 15 on Central Avenue from McDowell to Portland.

## Progress

- Archer Western Contractors (AWC) is continuing utility construction in segments 9 through 15, installing storm sewer, sanitary sewer, and water services. AWC is continuing to install traffic features and wiring on traffic signals in segments 9 through 15. Additionally, AWC is proceeding with OCS foundations, street lighting conduits, foundations, and irrigation work as required along ROW and stations.
- AWC is working their day and night crews 4 -10 hour shifts a week.
- AWC is currently performing water line encasement work at 12<sup>th</sup> Street and Jefferson which will then allow completion of station east ramp. The 3rd Street and Washington station foundation will complete the first week of May. The McDowell station work has been rescheduled to start in June.
- AWC currently has six rail headings in progress throughout the alignment and has installed approximately 28,000 LF of guideway throughout the alignment. The guideway in the downtown area from 7<sup>th</sup> at Washington and Jefferson to Roosevelt at Central and 1<sup>st</sup> Ave has been completed. There is continuing guideway installation on the east end of the project in Segments 9,10,11,12 and 15. AWC should provide pricing for 11<sup>th</sup> street loop special track work next month.
- APS is continuing with street light pole installations throughout the alignment. The COP Water Services contractor has started the 12-inch water line on Central from Roosevelt to Fillmore and is scheduled to complete by the end of June.
- AWC continues to install curbs, gutters, and sidewalks while placing roadway paving throughout the downtown portion of the alignment with a scheduled completion of August.

## Cost and Schedule – Variance Analysis

- AWC and METRO continue negotiations concerning the master schedule milestone revision change order. The current progress schedule indicates the contractor has completed 58 percent of the work.

## Issues and Solutions

- Meetings with system integration contractor to address any design conflicts and coordination issues are being held bi-weekly. These meetings are being held at the field office to better effect contractor communication with the Line Section 3 contractor and the TES/S&C contractor.

## Construction Photographs



Roadway Paving on Jefferson



Guideway on Washington



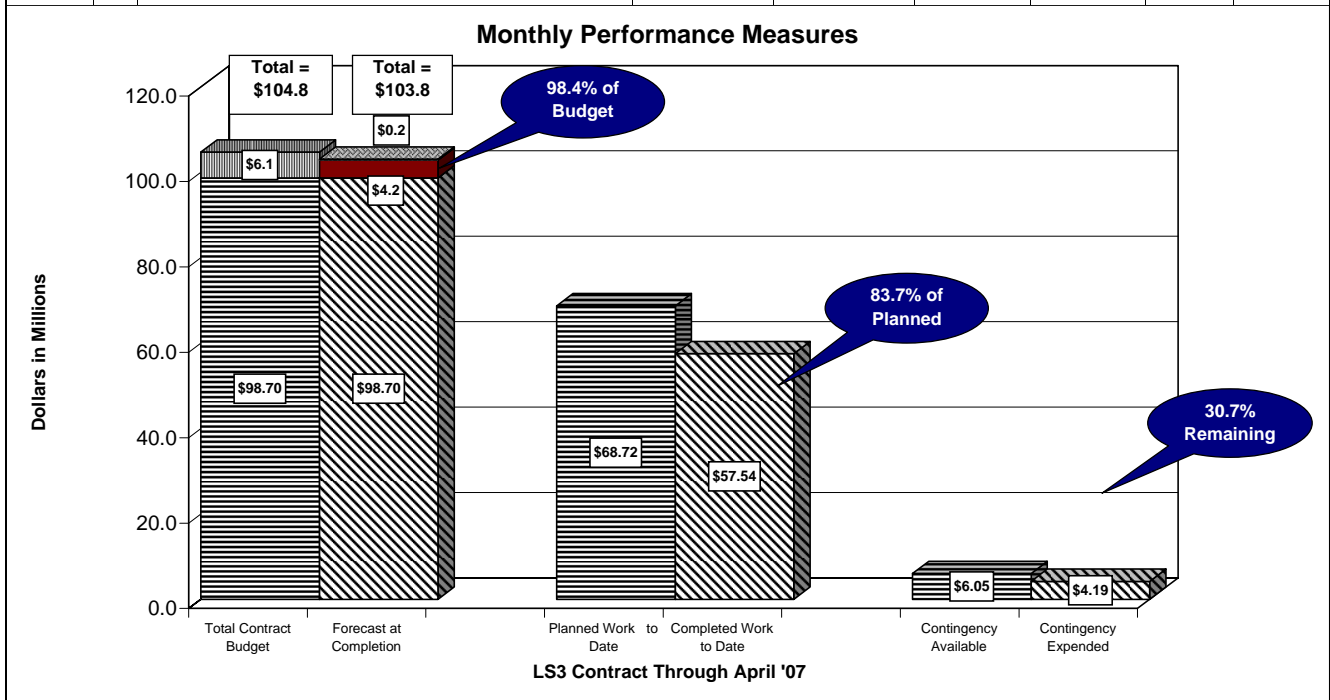
Sidewalk restoration on Collier Center



Temporary sidewalk at 1<sup>st</sup> Ave and Jefferson Station (County Courthouse)

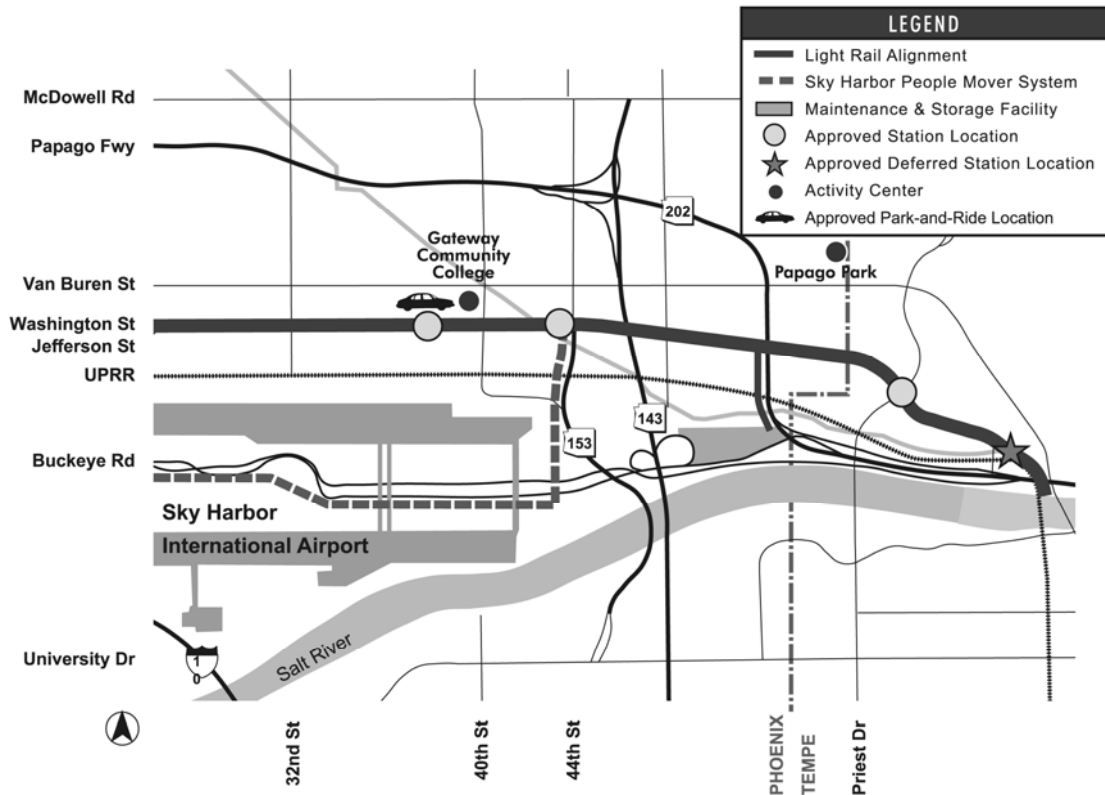


	<b>Description:</b>	<b>3.1.3 Line Section 3</b>		
	<b>PE/PA:</b>	<b>William Gustafson</b>		
	<b>Contractor:</b>	<b>Archer Western</b>		
	<b>Resident Engineer:</b>	<b>William Atesis</b>		
	<b>Data Through:</b>	<b>March 30, 2007</b>		
	<b>Cumulative</b>	<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Budget	\$79,248,617	\$19,452,352	\$98,700,969
2	Executed Change Orders	\$1,598,681	\$340,277	\$1,938,958
3	Budget Transfers	\$0	\$2,252,141	\$2,252,141
4	Current Budget (1+2+3)	\$80,847,298	\$22,044,770	\$102,892,068
5	Work Scheduled	\$55,394,710	\$13,325,559	\$68,720,269
6	Work Earned	\$45,824,915	\$11,714,673	\$57,539,588
7	Actual Expenditures	\$45,988,025	\$11,696,916	\$57,684,941
8	Forecast to Complete Base (4-7)	\$34,859,273	\$10,347,854	\$45,207,127
9	Change Orders Pending Execution	\$59,207	\$123,594	\$182,801
10	Forecast at Completion (7+8+9)	\$80,906,505	\$22,168,364	\$103,074,869
11	Percent Budget Expended (7/4)	56.9%	53.1%	56.1%
12	Percent Planned (5/4)	68.5%	60.4%	66.8%
13	Earned Percent Complete (6/4)	56.7%	53.1%	55.9%
14	Schedule Performance (6/5)	0.83	0.88	0.84
15	Cost Performance (6/7)	1.00	1.00	1.00
16	Contingency Budget	\$5,648,232	\$402,730	\$6,050,962
17	Remaining Contingency	\$4,049,551	\$377,445	\$1,859,863
18	Percent Contingency Remaining (17/16)	71.7%	93.7%	30.7%
	<b>Period</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	\$117,705	\$0	\$117,705
3	Budget Transfers	\$0	\$1,260,700	\$1,260,700
4	Current Budget (1+2+3)	\$80,847,298	\$22,044,770	\$102,892,068
5	Work Scheduled (Cumm - Last Period)	\$3,036,292	\$644,250	\$3,680,542
6	Work Earned (Cumm - Last Period)	\$3,882,792	\$710,859	\$4,593,651
7	Actual Expenditures (Cumm - Last Period)	\$3,967,111	\$704,249	\$4,671,360
8	Forecast to Complete Base (4-7)	\$76,880,187	\$21,340,521	\$98,220,708
9	Change Orders Pending Execution	-\$70,720	-\$42,884	-\$113,604
10	Forecast at Completion (7+8+9)	\$80,776,578	\$22,001,886	\$102,778,464
11	Percent Budget Expended (7/4)	4.9%	3.2%	4.5%
12	Percent Planned (5/4)	3.8%	2.9%	3.6%
13	Earned Percent Complete (6/4)	4.8%	3.2%	4.5%
14	Schedule Performance (6/5)	1.28	1.10	1.25
15	Cost Performance (6/7)	0.00	0.00	0.00
16	Contingency Budget	\$6,398,232	\$1,231,072	\$7,629,304
17	Remaining Contingency	\$6,280,527	-\$29,628	\$6,250,899
18	Percent Contingency Remaining (17/16)	98.2%	-2.4%	81.9%



Line Section 4

LINE SECTION 4



**Description**

Line Section 4 guideway is approximately 5.4 miles from 26th and Washington Street to the northern limit of Tempe Town Lake. The work includes demolition, relocation of water and sewer lines, roadway improvements, drainage modifications, sidewalk and landscaping, streetlights, installation of traffic control signals, LRT station platform foundations, systems duct bank and conduits, OCS pole foundations, preparation of the tracked and sub drains, installations of track and special trackwork including the portion of the LRT Tempe Town Lake Bridge, and replacement of the Washington Street Bridge over the Grand Canal. There are three light rail stations located on Washington Street at 38th Street, 44th Street and Priest Drive.

**Progress**

- Tempe Town Lake Bridge: Direct fixation fastener/plinth installation is substantially complete with punch-list items remaining. The tee rail is now being installed on the left track.
- Papago Drive to Tempe Town Lake Bridge: Roadway, curb/gutter, sidewalk, and driveway construction is now complete and landscape irrigation installation is nearing completion. The roadway was milled and the crack sealed. Guideway slabs are substantially complete to Center Parkway and are opened to the follow-on contractor for joint use. The guideway slab construction south of Washington Street to the bridge was



completed. The east and west ramps to the station are nearing completion. The micro-duct installation was completed.

- Fifty-Sixth Street to Papago Drive: The Contractor is working on punch list items. Landscape irrigation installation is still underway. Micro-duct installation has also been completed in this area. The roadway has been milled and the cracks sealed prior to the placement of a rubberized asphalt overlay.
- Fifty-Sixth Street to 48th Street: Punch list work is now complete. Micro-duct installation is also complete. Landscape irrigation work has begun and is progressing well. Roadway milling and sealing of cracks is complete.
- Forty-Eighth Street to 44th Street: Installation of landscape irrigation is in progress. The micro-ducts were installed. The roadway was milled and the cracks sealed. High voltage overhead warning signs were installed.
- Forty-Fourth Street to 40th Street: Flow through guideway curb installation is now complete. Installation is nearing completion of the track embedded in elastomeric grout across the Washington Street Bridge over the Grand Canal. Micro-ducts were installed.
- Fortieth Street to 26th Street: Curb/gutter, driveway, sidewalk, and catch basin construction is still in progress on the north side of Washington Street from 38<sup>th</sup> Street to 34<sup>th</sup> Street. Guideway slab construction at the 36<sup>th</sup> Street intersection was completed and opened to vehicular traffic. Guideway slab construction was completed from 38<sup>th</sup> to 35<sup>th</sup> Streets. The roadway was demolished, guideway excavated, OCS foundations constructed, track drainage piping installed as well as CSD between 32<sup>nd</sup> and 30<sup>th</sup> Streets. Excavation has begun for the 38<sup>th</sup> Street Station foundations. Placement of advanced waterline crossings and under the guideway between 30<sup>th</sup> and 28<sup>th</sup> Streets are underway. The added 12-inch waterline relocation work from 26<sup>th</sup> Street to 30<sup>th</sup> Street has begun and is progressing well; the offset storm drainage manholes were completed and the CSD installation has begun from 34<sup>th</sup> to 32<sup>nd</sup> Streets.

### **Cost and Schedule – Variance Analysis**

- Line Section 4's successful on time completion of Milestones 1, 2 and 3A have been integrated into the follow-on contractor's schedules to determine forecasts for train and line testing and overall project completion in December 2008.
- Milestone Number 3B (44<sup>th</sup> to 26<sup>th</sup> streets) will be subdivided to reflect portions of the line with early completion of track guideway. This will allow early starts by follow-on contractors.
- Milestone Number 4 for the 38<sup>th</sup> street station foundation is on schedule for on time completion June 15 2007.
- Overall project completion Milestone F is on schedule for a timely completion December 28, 2007.

### **Issues and Solutions**

- Existing water line features not shown in plans have been found and need to be relocated. The Contractor has stated that this extra work may impact final completion.

Detailed analysis of the scope, construction requirements and timing for completion will be finalized this month. No major impact is expected.

### Construction Photographs



Micro-duct installation at 48<sup>th</sup> Street



High Speed LRV testing on LS4 Test Track



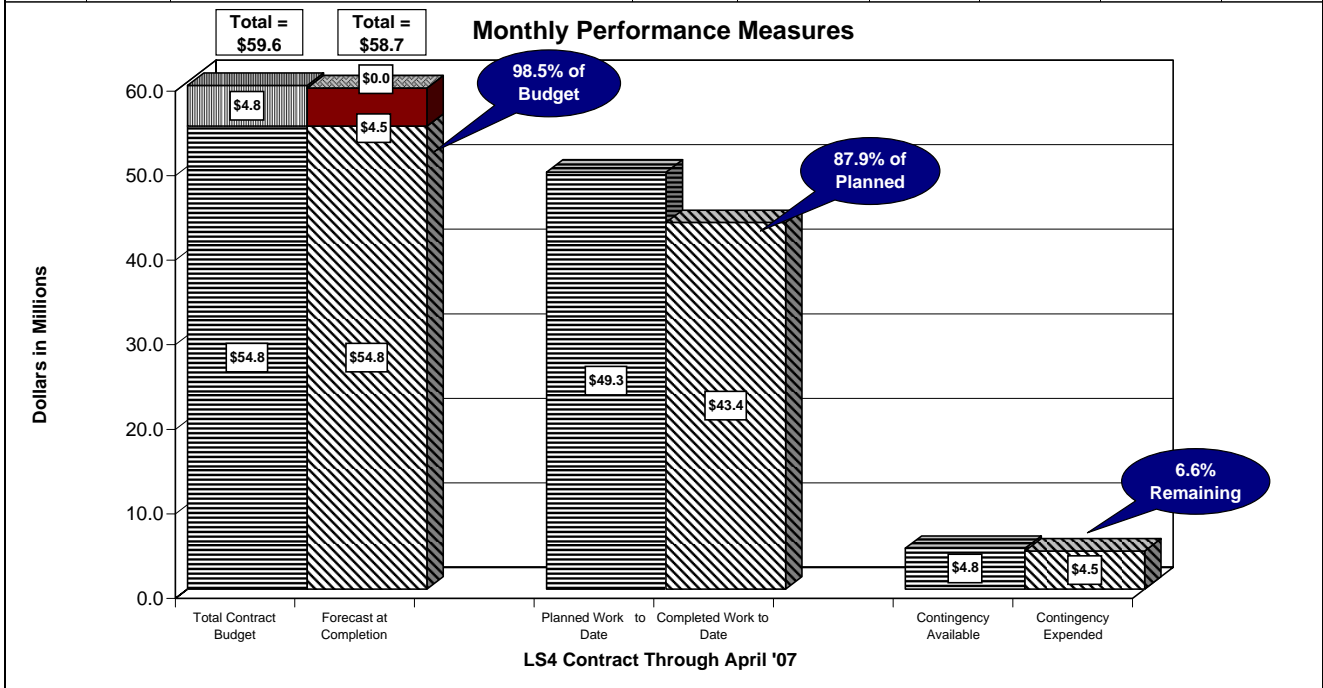
Elastomeric grout placement on the Washington Street Bridge



Checking rail gauge alignment for embedded track

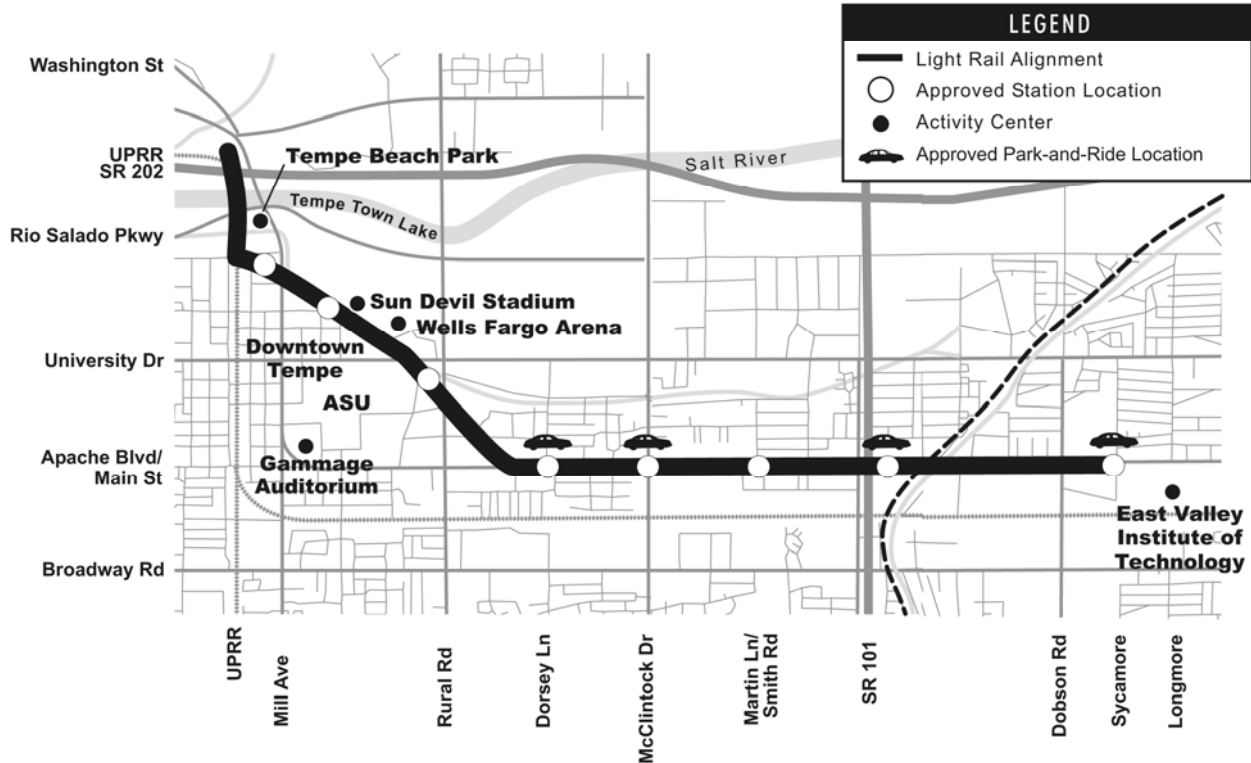


<b>Description:</b>		<b>3.1.4 Line Section 4</b>		
<b>PE/PA:</b>		<b>Avrum Loewenstein</b>		
<b>Contractor:</b>		<b>Sundt/Stacey Witbeck</b>		
<b>Resident Engineer:</b>		<b>Frank Aber</b>		
<b>Data Through:</b>		<b>March 31, 2007</b>		
	<b>Cumulative</b>	<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Budget	\$47,869,894	\$6,880,853	\$54,750,747
2	Executed Change Orders	\$3,592,231	\$1,238,336	\$4,830,567
3	Budget Transfers	-\$625,000	\$1,557,561	\$932,561
4	Current Budget (1+2+3)	\$50,837,125	\$9,676,750	\$60,513,875
5	Work Scheduled	\$41,084,592	\$8,237,872	\$49,322,464
6	Work Earned	\$36,058,368	\$7,302,940	\$43,361,308
7	Actual Expenditures	\$37,830,866	\$7,153,750	\$44,984,616
8	Forecast to Complete Base (4-7)	\$13,006,259	\$2,523,000	\$15,529,259
9	Change Orders Pending Execution	\$925,300	\$1,965	\$927,265
10	Forecast at Completion (7+8+9)	\$51,762,425	\$9,678,715	\$61,441,140
11	Percent Budget Expended (7/4)	74.4%	73.9%	74.3%
12	Percent Planned (5/4)	80.8%	85.1%	81.5%
13	Earned Percent Complete (6/4)	70.9%	75.5%	71.7%
14	Schedule Performance (6/5)	0.88	0.89	0.88
15	Cost Performance (6/7)	0.95	1.02	0.96
16	Contingency Budget	\$4,662,188	\$172,633	\$4,834,821
17	Remaining Contingency	\$144,657	\$172,633	\$317,290
18	Percent Contingency Remaining (17/16)	3.1%	100.0%	6.6%
	<b>Period</b>			
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	-\$609,247	\$0	-\$609,247
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$50,837,125	\$9,676,750	\$60,513,875
5	Work Scheduled (Cumm - Last Period)	\$1,672,662	\$34,057	\$1,706,719
6	Work Earned (Cumm - Last Period)	\$1,438,515	\$1,070,181	\$2,508,696
7	Actual Expenditures (Cumm - Last Period)	\$1,443,956	\$949,530	\$2,393,486
8	Forecast to Complete Base (4-7)	\$13,006,259	\$2,523,000	\$15,529,259
9	Change Orders Pending Execution	\$544,547	\$0	\$544,547
10	Forecast at Completion (7+8+9)	\$14,994,762	\$3,472,530	\$18,467,292
11	Percent Budget Expended (7/4)	2.8%	9.8%	4.0%
12	Percent Planned (5/4)	3.3%	0.4%	2.8%
13	Earned Percent Complete (6/4)	2.8%	11.1%	4.1%
14	Schedule Performance (6/5)	0.86	31.42	1.47
15	Cost Performance (6/7)	1.00	1.13	1.05
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



Line Section 5

**LINE SECTION 5**



**Description**

Line Section 5 is 4.7 miles in length, beginning at the 1st Street grade crossing in Tempe and progressing down the former Creamery Branch of the UPRR in Tempe, across Mill Avenue, and behind the Mission Palms resort. From there, it runs along Stadium Drive across Rural Road down Terrace Road to Apache Boulevard. It then proceeds east on Apache Boulevard and enters the City of Mesa, where it terminates in the vicinity of Main Street and Sycamore near the Tri-city Mall property.

The construction work in this contract includes demolition, relocation of public utilities, roadway and drainage modifications, station platform foundations, installation of systems duct bank and conduits, street lights, traffic signals, OCS pole foundations, preparation of track bed, and installation of embedded track. Stations are located in Tempe at 3<sup>rd</sup> and Mill, 5<sup>th</sup> and College, University and Rural, Apache and Dorsey, Apache and McClintock, Apache and Smith-Martin, Apache and Price Freeway; and in Mesa at Main and Sycamore.

**Progress**

- The Contractor has installed approximately 17,740 track feet of embedded track, with scheduled weekly placements until completion.



- With substantial completion for Milestone A2 (Unrestricted Trackway Access for Follow-On Contractors) achieved in March, the Contractor is focusing efforts on the remaining track milestones.
- The Contractor is prepared for the track crossing installation at First Street, in coordination with Union Pacific Railroad and the METRO Signals and Communications contractor, during early June.
- The Contractor has substantially completed the column foundations and walls at Fifth Street and College Avenue Station.
- The Contractor placed most of the track along Terrace Road, and has completed the Terrace Road and Lemon Street crossing and the Terrace Road and Apache Boulevard crossing.
- The Contractor continued guideway milling, subgrade, ductbank, and OCS foundation work on Apache Boulevard, from Dorsey Road to the east side of McClintock Drive. Special track has been placed at the Dorsey Crossover in preparation for embedment.
- The Contractor continued coordination with third-party utility relocations eastward along Apache Boulevard, from McClintock Drive to the Tempe Canal Bridge, while completing a 24-inch storm drain and a 12-inch waterline main.
- The Contractor continued street widening in the Apache Boulevard and McClintock Drive Station and Smith-Martin Station areas.
- The Contractor completed the north side of the Apache over 101 Loop Bridge, and shifted traffic to start work on the south side of the bridge.
- The Contractor continued street widening and street light placements from Price Road to the Tempe Canal Bridge, and replaced approximately 1300 feet of 8-inch waterline main.
- The Contractor completed the Tempe Canal Bridge.
- The Contractor continued utility relocations and street light and traffic signal foundation installations eastward from the Tempe Canal Bridge to Sycamore Street in the City of Mesa.
- The Contractor completed the Dobson Road and Main Street intersection sewer and waterline relocation.

### **Cost and Schedule – Variance Analysis**

- Milestone A2 is substantially complete. Milestone B2 has been revised to August 28, 2007, and is on schedule, though new utility conflicts on Apache Boulevard will challenge that completion date. Milestones C2 and D2 are being challenged by utility relocation delays as well. The Contractor has submitted an acceleration proposal to offset these delays.

### **Issues and Solutions**

- Utility relocation and coordination issues with Union Pacific Railroad have delayed the installation of the First Street crossing. This is being resolved by coordinating trackwork



at that location with the placement of the light rail signal system during June. The Contractor has been given relief from his Milestone A requirement at this location to facilitate this arrangement.

- The Contractor continues to face significant challenges with existing utilities along the alignment eastward from McClintock Drive. Significant lengths of a water main, an electric line, and a gas line have had to be lowered to meet clearance requirements. These utility relocations were not previously noted in the drawings, nor accommodated in the schedule. The Agency is working to expedite the third-party utility relocations, as the relocations continue.
- Utility relocations by SRP-Power along Apache Boulevard in Tempe, and Main Street in Mesa, have delayed street widening efforts and trackway work along this corridor. It appears SRP will be six months later than originally projected in completing this work. SRP irrigation relocations were delayed due to design and easement issues, and it is unclear when the irrigation work will be accomplished. The Contractor has altered scheduled work sequences to enable the utilities to complete their work expeditiously.
- The Contractor's significant additional support work to facilitate third party utility relocations and to resolve unexpected conflicts with city and private utilities continues to draw significant Contractor resources from guideway production. Maintaining contingency funding in the project budget is critical for resolution of utility issues. Resolution of specific utility issues and coordination of work are addressed weekly in the Line Section 5 Utilities Coordination meeting.
- Maintenance of traffic flow while performing major project work, such as major grade crossings, bridgework, and utility relocations, continues to be a challenge. The scope of work at present requires significant traffic control measures along the entire project alignment, and coordinating barrier and closure plans with the numerous special events in this area requires major effort. Close coordination with local cities and ADOT for closures and for shifting traffic patterns has, thus far, resulted in workable production schemes.
- Public support for the project along the project has been reasonably good, in spite of some stakeholders' having had to endure construction disruptions for months. In Mesa, many new stakeholders are being impacted. The Contractor's positive efforts to assure stakeholder support through advance notices and rapid resolution of stakeholder concerns, has resulted in his receiving 100 percent of the Community Advisory Board incentive award for each quarter of the project. Additionally, the Metro public involvement personnel assigned to the Project are providing excellent and critical support in conflict avoidance and resolution.

**Construction Photos**



West End of ASU Promenade, Milestone G



Track Placement at Terrace Road, Milestone B2



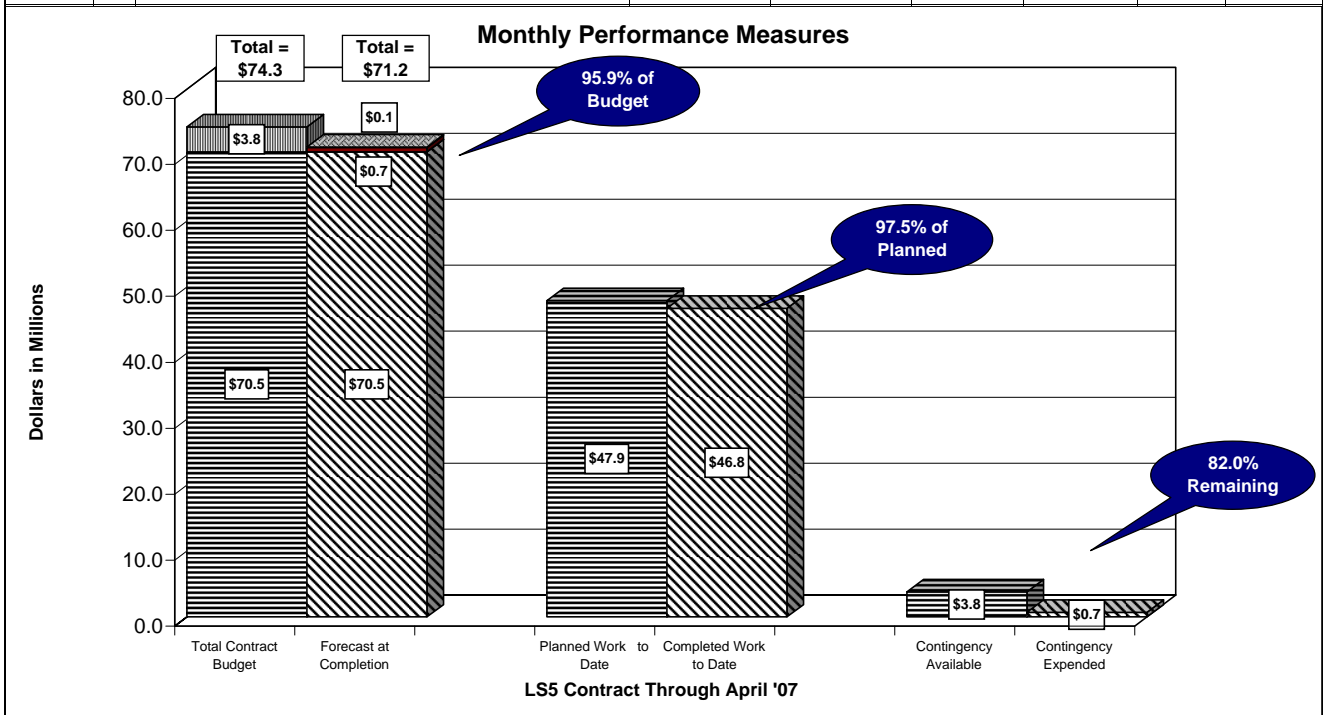
Guideway Work on Apache Boulevard,  
Milestone B2



Utility Work in Mesa, Milestone E2



<b>Description:</b>		3.1.5 Line Section 5		
<b>PE/PA:</b>		Brian Buchanan		
<b>Contractor:</b>		Sundt/Stacey Witbeck		
<b>Resident Engineer:</b>		Sam Graham		
<b>Data Through:</b>		April 15, 2007		
<b>Cumulative</b>		<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Budget	\$68,882,969	\$1,573,317	\$70,456,286
2	Executed Change Orders	\$685,191	\$240,242	\$925,433
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$69,568,160	\$1,813,559	\$71,381,719
5	Work Scheduled	\$46,458,083	\$1,482,197	\$47,940,280
6	Work Earned	\$45,795,447	\$965,189	\$46,760,636
7	Actual Expenditures	\$45,806,624	\$732,138	\$46,538,762
8	Forecast to Complete Base (4-7)	\$23,761,536	\$1,081,421	\$24,842,957
9	Change Orders Pending Execution	\$58,134	\$16,535	\$74,669
10	Forecast at Completion (7+8+9)	\$69,626,294	\$1,830,094	\$71,456,388
11	Percent Budget Expended (7/4)	65.8%	40.4%	65.2%
12	Percent Planned (5/4)	66.8%	81.7%	67.2%
13	Earned Percent Complete (6/4)	65.8%	53.2%	65.5%
14	Schedule Performance (6/5) (SPI)	0.99	0.00	0.98
15	Cost Performance (6/7) (CPI)	1.00	0.00	1.00
16	Contingency Budget	\$3,708,135	\$107,679	\$3,815,814
17	Remaining Contingency	\$3,022,944	\$106,767	\$3,129,711
18	Percent Contingency Remaining (17/16)	81.5%	99.2%	82.0%
<b>Period</b>				
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	\$439,292	\$24,422	\$463,714
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$69,568,160	\$1,813,559	\$71,381,719
5	Work Scheduled (Cumm - Last Period)	\$2,796,638	\$93,061	\$2,889,699
6	Work Earned (Cumm - Last Period)	\$3,059,166	\$42,667	\$3,101,833
7	Actual Expenditures (Cumm - Last Period)	\$3,014,671	\$26,916	\$3,041,587
8	Forecast to Complete Base (4-7)	\$66,553,489	\$1,786,643	\$68,340,132
9	Change Orders Pending Execution	\$32,506	-\$16,179	\$16,327
10	Forecast at Completion (7+8+9)	\$69,600,666	\$1,797,380	\$71,398,046
11	Percent Budget Expended (7/4)	4.3%	1.5%	4.3%
12	Percent Planned (5/4)	4.0%	5.1%	4.0%
13	Earned Percent Complete (6/4)	4.4%	2.4%	4.3%
14	Schedule Performance (6/5)	1.09	0.00	1.07
15	Cost Performance (6/7)	0.00	0.00	0.00
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



## 48<sup>th</sup> Street Bridge Replacement



### Description

The 48th Street Bridge Replacement Contract consists of the replacement of one concrete vehicular and one utility bridge over the SRP Grand Canal, construction of underground utilities including water mains and APS ductbanks, jack and bored utility pipe casings under UPRR railroad track, curb and gutter, sidewalk and driveways, grading and fencing of the METRO rail material storage yard, and removal and replacement of asphalt concrete pavement.

### Progress

- The punch list has been substantially completed by the Contractor. Final inspection and acceptance by METRO and the City of Phoenix is pending.

### Cost and Schedule – Variance Analysis

- This contract was closed out after final completion, final acceptance and final payment.

### Issues and Solutions

- None.

## Town Lake Bridge



### Description

The Town Lake Bridge consists of an 11-span structure with concrete deck and steel deck truss superstructure on concrete piers. The structure has an overall length of 1,546 feet. The North and South approaches to the bridge are of retained earth fill and are approximately 1,654 feet in total length. The construction work includes cast-in-place drilled shaft pier foundations to bedrock, cast-in-place concrete pier caps, concrete abutments, concrete retaining walls, a steel truss superstructure, cast-in-place concrete deck, specialty lighting, demolition, relocation of public utilities, roadway and drainage modifications, systems duct bank conduits, streetlights, OCS pole foundations, preparation of track embankment and installation of concrete track slab. Installation of direct fixation rail for both the approaches and the bridge is included in Line Section 4 contract.

### Progress

- The Project is complete and the Contract has been closed.

### Cost and Schedule – Variance Analysis

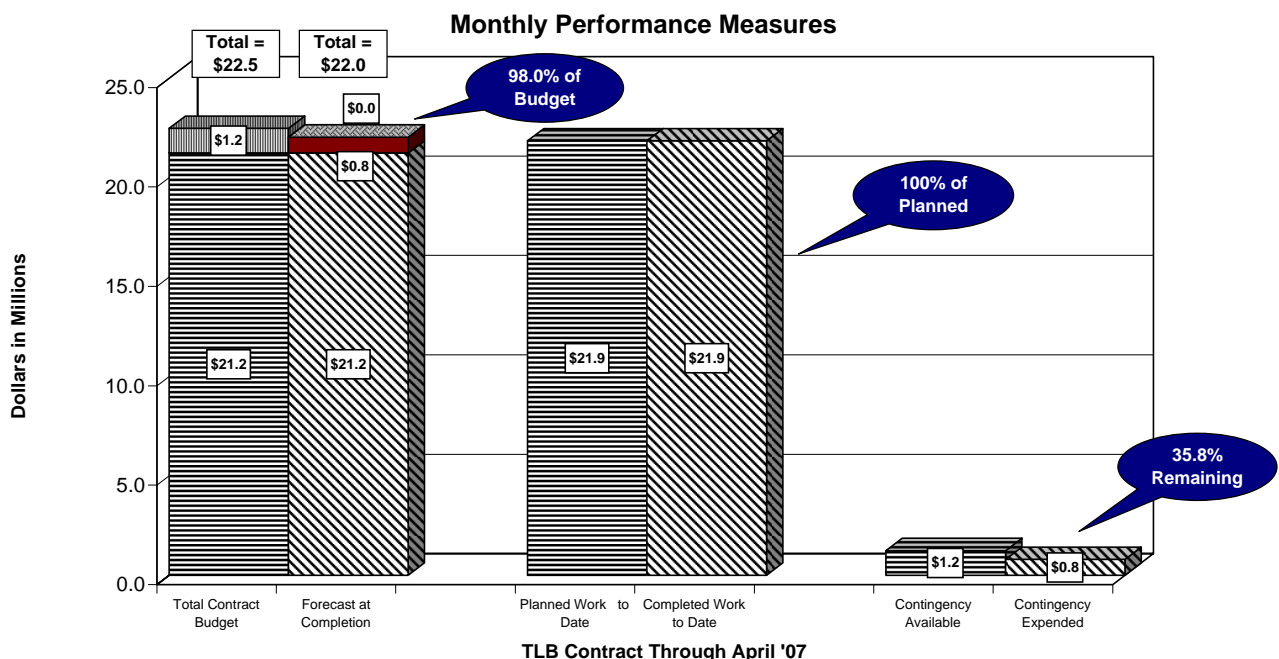
- This Contract has been closed

### Issues and Solutions

- None.



<b>Description:</b>		<b>3.6.1 Town Lake Bridge</b>			
<b>PE/PA:</b>		<b>Bill Gustafson</b>			
<b>Contractor:</b>		<b>PCL Contractors</b>			
<b>Resident Engineer:</b>		<b>Joel Mona</b>			
<b>Data Through:</b>		<b>September 30, 2006</b>			
		<b>Cumulative</b>	<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Budget	\$21,219,861	\$17,523	\$21,237,384	
2	Executed Change Orders	\$798,522	\$0	\$798,522	
3	Budget Transfers	-\$183,000	\$0	-\$183,000	
4	Current Budget (1+2+3)	\$21,835,383	\$17,523	\$21,852,906	
5	Work Scheduled	\$21,835,383	\$17,523	\$21,852,906	
6	Work Earned	\$21,835,383	\$15,771	\$21,851,154	
7	Actual Expenditures	\$21,759,752	\$15,771	\$21,775,523	
8	Forecast to Complete Base (4-7)	\$75,631	\$1,752	\$77,383	
9	Change Orders Pending Execution	\$0	\$0	\$0	
10	Forecast at Completion (7+8+9)	\$21,835,383	\$17,523	\$21,852,906	
11	Percent Budget Expended (7/4)	99.7%	90.0%	99.6%	
12	Percent Planned (5/4)	100.0%	100.0%	100.0%	
13	Earned Percent Complete (6/4)	100.0%	90.0%	100.0%	
14	Schedule Performance (6/5)	1.00	0.90	1.00	
15	Cost Performance (6/7)	1.00	1.00	1.00	
16	Contingency Budget	\$1,242,400	\$1,402	\$1,243,802	
17	Remaining Contingency	\$443,878	\$1,402	\$445,280	
18	Percent Contingency Remaining (17/16)	35.7%	0.0%	35.8%	
		<b>Period</b>			
1	Budget	N/A	N/A	N/A	
2	Executed Change Orders	\$0	\$0	\$0	
3	Budget Transfers	\$0	\$0	\$0	
4	Current Budget (1+2+3)	\$21,835,383	\$17,523	\$21,852,906	
5	Work Scheduled (Cumm - Last Period)	\$0	\$0	\$0	
6	Work Earned (Cumm - Last Period)	\$0	\$0	\$0	
7	Actual Expenditures (Cumm - Last Period)	\$0	\$0	\$0	
8	Forecast to Complete Base (4-7)	\$21,835,383	\$17,523	\$21,852,906	
9	Change Orders Pending Execution	\$0	\$0	\$0	
10	Forecast at Completion (7+8+9)	\$21,835,383	\$0	\$21,835,383	
11	Percent Budget Expended (7/4)	0.0%	0.0%	0.0%	
12	Percent Planned (5/4)	0.0%	0.0%	0.0%	
13	Earned Percent Complete (6/4)	0.0%	0.0%	0.0%	
14	Schedule Performance (6/5)	0.00	0.00	0.00	
15	Cost Performance (6/7)	1.00	1.00	1.00	
16	Contingency Budget	\$1,242,400	\$0	\$1,242,400	
17	Remaining Contingency	\$443,878	\$0	\$443,878	
18	Percent Contingency Remaining (17/16)	35.7%	0.0%	35.7%	



Note: Contractor submitted final schedule update during previous reporting period

## Operations and Maintenance Center



### Description

The Operations and Maintenance Center (OMC) contract includes construction of Maintenance of Equipment (MOE) building, Maintenance of Way (MOW) building, Car Wash facility, Service and Cleaning facility, maintenance equipment and tools, entry station, track installation in the yard and shop areas, construction of yard lead track from the LRT mainline in Washington Street to the OMC site including a bridge over the UPRR railroad track and SRP Grand Canal, retaining walls and embankment, fill materials for site preparation, grading and drainage, drain channel and swales, culverts and underground drainage pipes, roadways, parking lots, landscaping, fencing, water mains for fire protection and domestic services, utility services, electrical ductbanks, OCS pole foundations, and systems ductbanks.

### Progress

- The Certificate of Occupancy for MOE building was issued by the City of Phoenix DSD. The final punch list work was completed. The spray paint booth fire alarm system was completed and approved by the City of Phoenix Fire Department.
- At the MOW building, the punch list work has been completed.
- At the yard service and cleaning platform, the sand distribution system is ready for testing. The punch list work was completed by the Contractor.
- The LRV wash equipment is complete and ready for testing. The punch list work was completed.
- The site entrance lift gates are now being installed.

- The Contractor continues to work on the remaining Completion List items.

### **Cost and Schedule – Variance Analysis**

- The contract closeout and final acceptance activities are in progress.

### **Issues and Solutions**

- None.

### **Construction Photographs**

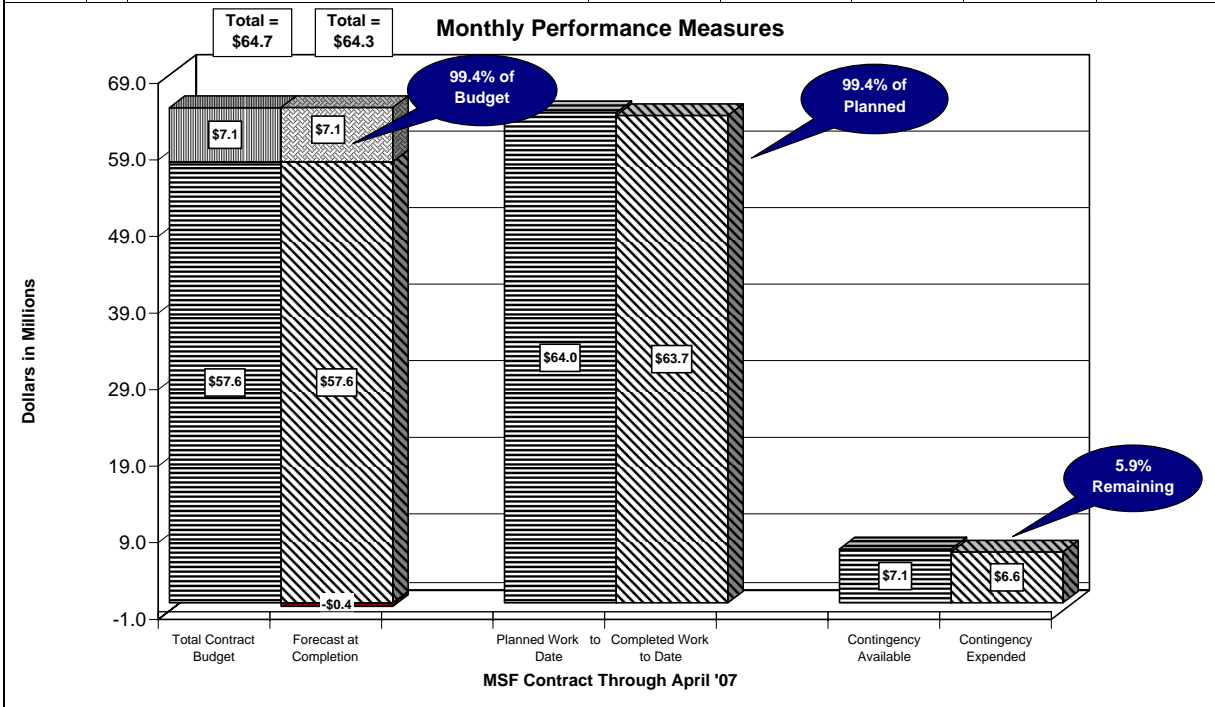


Maintenance of Equipment Building Shop Floor



APRIL 2007 RAIL PROGRESS REPORT

<b>Description:</b>	3.5.1 Maintenance Support Facility/Operations and Maintenance Center		
<b>PE/PA:</b>	Avrum Loewenstein		
<b>Contractor:</b>	Sundt/Stacy Witbeck		
<b>Resident Engineer:</b>	Brian Mason		
<b>Data Through:</b>	March 31, 2007		
	<b>Cumulative</b>	<b>5309</b>	<b>Total</b>
1 Budget		\$57,637,721	\$57,637,721
2 Executed Change Orders		\$7,094,906	\$7,094,906
3 Budget Transfers		-\$257,984	-\$257,984
4 Current Budget (1+2+3)		\$64,474,643	\$64,474,643
5 Work Scheduled		\$64,042,308	\$64,042,308
6 Work Earned		\$63,663,665	\$63,663,665
7 Actual Expenditures		\$64,184,272	\$64,184,272
8 Forecast to Complete Base (4-7)		\$290,371	\$290,371
9 Change Orders Pending Execution		-\$449,550	-\$449,550
10 Forecast at Completion (7+8+9)		\$64,025,093	\$64,025,093
11 Percent Budget Expended (7/4)		99.5%	99.5%
12 Percent Planned (5/4)		99.3%	99.3%
13 Earned Percent Complete (6/4)		98.7%	98.7%
14 Schedule Performance (6/5)		0.99	0.99
15 Cost Performance (6/7)		0.99	0.99
16 Contingency Budget		\$7,063,772	\$7,063,772
17 Remaining Contingency		\$418,416	\$418,416
18 Percent Contingency Remaining (17/16)		5.9%	5.9%
	<b>Period</b>		
1 Budget		N/A	N/A
2 Executed Change Orders		\$0	\$0
3 Budget Transfers		\$0	\$0
4 Current Budget (1+2+3)		\$64,042,308	\$64,042,308
5 Work Scheduled (Cumm - Last Period)		\$1,102	\$1,102
6 Work Earned (Cumm - Last Period)		\$174,170	\$174,170
7 Actual Expenditures (Cumm - Last Period)		\$365,317	\$365,317
8 Forecast to Complete Base (4-7)		\$63,676,991	\$63,676,991
9 Change Orders Pending Execution		\$111,049	\$111,049
10 Forecast at Completion (7+8+9)		\$64,153,357	\$64,153,357
11 Percent Budget Expended (7/4)		0.6%	0.6%
12 Percent Planned (5/4)		0.0%	0.0%
13 Earned Percent Complete (6/4)		0.3%	0.3%
14 Schedule Performance (6/5)		158.05	158.05
15 Cost Performance (6/7)		0.48	0.48
16 Contingency Budget			
17 Remaining Contingency			
18 Percent Contingency Remaining (17/16)			



## Park-and-Ride



## Description

Surface Park-and-Rides (PNR) are proposed at eight sites along the alignment, 3,439 spaces are currently provided. Sites are located at 19th Avenue and Montebello, 19th Avenue and Camelback Road, Central Avenue and Camelback Road, 38th Street and Washington Street, Dorsey Lane and Apache Boulevard, McClintock Road and Apache Boulevard, Price Freeway and Apache Boulevard, and Sycamore Drive and Main Street. The lots are adjacent to Transit Centers at 19th Street and Montebello, Central and Camelback and Sycamore and Main Street. On site security buildings are provided at 19th Avenue and Montebello, 19th Avenue and Camelback Road, McClintock Road and Apache Boulevard, Price Freeway and Apache Boulevard, and Sycamore Drive and Main Street.

The PNR construction package includes work for demolition, grading, drainage, concrete curbs, concrete sidewalks, asphalt concrete pavement, lighting, irrigation, landscaping, a security building, signing and pavement marking. CCTV security cameras and emergency telephones will be installed under the Signals and Communication construction package.

## Progress

- The IFB documents were made available to prospective bidders on April 23, 2007. Six sites including 19th Avenue and Montebello, 19th Avenue and Camelback Road, Central Avenue and Camelback Road, 38th Street and Washington Street, Price Freeway and Apache Boulevard, and Sycamore Drive and Main Street are included for the base bid. The seventh site, McClintock Road and Apache Boulevard, is included as an alternative or option.



- Permitting for the 19th Avenue and Montebello site is complete except for the selection of the Contractor.
- Permitting for the 19<sup>th</sup> Avenue and Camelback site is complete except for the selection of the Contractor.
- Preliminary Site Plan approval has occurred for the Central Avenue and Camelback site. Building and Safety permitting plans are expected to be submitted in mid-May and the site is expected to be permitted in time for contractor notice to proceed.
- The Dorsey and Apache site continues to be developed by the City of Tempe and is not part of this Contract. Metro is providing the security system for the site.
- Permitting for the 38th Street and Washington Street PNR site is complete except for the selection of the Contractor.
- The McClintock and Apache PNR surface site is in the final permitting review process with the City of Tempe. Permitting is expected to be available by notice to proceed date for this site. The City of Tempe and Metro continue to work with the Developer for the design and construction of an equivalent parking garage. The garage is currently scheduled for completion by March 2008. The surface lot, bid as an option, will be constructed if the garage fails to proceed in a timely manner.
- The Price Freeway and Apache PNR site is in the final permitting review process with the City of Tempe. Permitting is expected to be available by the notice to proceed date for this site.
- The Sycamore Drive and Main PNR site is in the final permitting review process with the City of Mesa. Permitting is expected to be available by notice to proceed.

### **Cost and Schedule – Variance Analysis**

- The budget for all sites is \$15,104,339 with a contingency of \$1,208,300.
- A recent construction cost estimate and projections indicate a base cost (without soft costs) of \$21,400,000. A transfer of the McClintock/Apache cost to the private Developer would reduce the construction estimate for the six remaining sites to approximately \$17,700,000.
- The Bid Opening date is May 22, 2007.
- Anticipated notice to proceed is August 13, 2007. Some sites will have delayed starts due to their use as construction yards by the Line Section contractors.

### **Issues and Solutions**

- Monitoring of the private Developer's progress for the McClintock/Apache site to assure that there are no less than 300 parking spaces available in December 2008.



**Park and Ride Construction Data**

No.	Park and Ride Site	Number of Spaces	Notice to Proceed Date	Notes
1	Montebello/19 <sup>th</sup> Ave.	794	December 31, 2007	*
2	19 <sup>th</sup> Ave./Camelback	410	December 31, 2007	*
3	Central/Camelback	135	November 28, 2007	*
4	38 <sup>th</sup> St./Washington	189	August 14, 2007	
5	Dorsey/Apache	100	August 2007, Tentative	By City of Tempe
6	McClintock/Apache--Garage	300	July 2007, Tentative	By Developer
7	Price Freeway/Apache	693	March 3, 2008	*
8	Sycamore/Main	802	August 14, 2007	
	<b>Opening Day Total</b>	3,423		

\* Notice to Proceed Date is delayed due to a site's current use as a Line Section construction yard.

## Track Material Procurement



### Description

The track materials are broken down into five separate procurements as follows:

- Ballasted Special Trackwork – includes ballasted turnouts and concrete switch ties for the OMC and direct fixation fasteners for the OMC, Town Lake Bridge (TLB) and Deck Park Bridge.
- Girder Rail – rail needed for the embedded trackwork.
- Girder Rail Special Trackwork – turnouts needed for the embedded trackwork.
- Concrete Crossties – concrete crossties needed for the OMC.
- T Rail – rail for the OMC, TLB including approaches and Deck Park Bridge.

### Progress

- Girder Rail
- Embedded Special Trackwork
  - The Contractor continues to produce special trackwork castings and other miscellaneous materials for this contract.
  - A final price has been successfully negotiated with the contractor on the 11<sup>th</sup> Street Wye Track Equilaterals for Line Section 3. This price was presented to the TRAC Committee and the 4C/CCB Committee. Both of these committees have approved the final price for this change.

This change will be presented at the next METRO Board Meeting. If approved, a change order will be issued to the Contractor.

- Two material deliveries were made during this month. The Contractor delivered a 100 Meter crossover for Line Section 1 and a 100 Meter crossover for Line Section 5.

### Cost and Schedule – Variance Analysis

- Track material procurement activities remain on schedule and within budget at this time.

### Issues and Solutions

- There are no significant issues at this time.

### Construction Photos



Delivery of a 100 Meter crossover to the Contractor's rail yard at Line Section 5

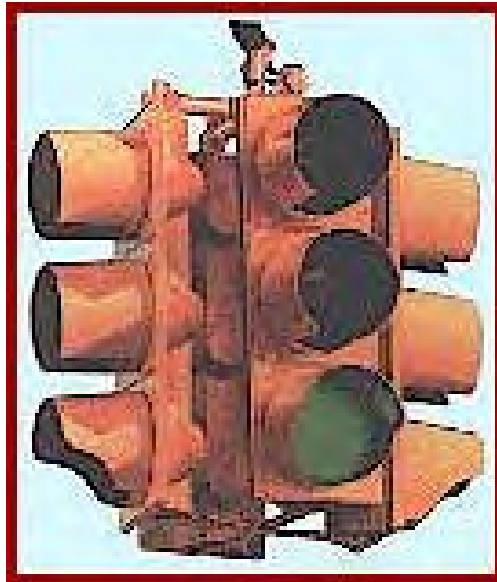


Delivery of a 100 Meter crossover to the Contractor's rail yard at Line Section 5



100 Meter Crossover delivered to Contractor's Yard at Line Section 1

## Traffic Signal Procurement



### Description

These Purchase Orders include the system-wide procurement of traffic signal poles, controllers, controller cabinets, and traffic central system upgrades for the City of Phoenix and Tempe.

### Progress

- All of traffic signal equipment for the five Line Section contracts initially ordered under these Purchase Orders has been delivered to METRO or directly to the Line Section contractors' storage yards.

### Cost and Schedule – Variance Analysis

- No Change for this month, traffic signal procurement activities have been completed.
- A table showing the status of costs incurred to-date versus budget is shown below:

Description	Contract/Budget Amount	Total Payments
COP Traffic System Upgrades	\$ 965,112.00	\$ 668,893.30
COT Traffic System Upgrades	\$ 350,347.00	\$ 189,612.00
Traffic Signal Controller/Cabinets	\$ 2,910,916.75	\$ 2,629,229.26
LS 1 Traffic Signal Poles/Mast Arms (Phoenix -PO is completed)	\$ 209,144.33	\$ 209,144.31
LS 2 Traffic Signal Poles/Mast Arms (Phoenix - PO is completed)	\$ 309,685.98	\$ 309,685.97
LS 3 Traffic Signal Poles/Mast Arms (Phoenix -PO is completed)	\$ 1,425,604.91	\$ 1,321,686.32
LS 4 Traffic Signal Poles/Mast Arms (Phoenix - PO is completed)	\$ 369,069.21	\$ 360,469.21

Description	Contract/Budget Amount	Total Payments
LS 4 Traffic Signal Poles/Mast Arms (Tempe - PO is completed)	\$ 337,883.00	\$ 336,247.85
LS 5 Traffic Signal Poles/Mast Arms (Tempe – PO is completed)	\$ 941,912.82	\$ 859,942.43

**Issues and Solutions**

- No issues at this time.

**Construction Photos**



Contractor being issued traffic signal poles for Line Section 3 at METRO's Storage Yard.



Contractor returning four Mast Arms to Metro Storage Yard for LS4.

## Underfloor Wheel Profiling Machine



### Description

Design, fabricate, furnish an Underfloor Wheel Profiling Machine, Mechanical Chip Collection/Removal Conveying System, and all necessary accessories, items of equipment, and mechanical, electrical, controls and structural items to re-profile wheels on Light Rail Vehicles. Deliver the machine to the OMC and install the machine within the concrete foundation constructed by the Agency in the Maintenance of Equipment building. Inspect, test, start-up the machine to ensure it is operating properly and safely and provide training to Agency staff.

### Progress

- The installation of the machine is now underway and is more than 75 percent complete.

### Cost and Schedule – Variance Analysis

- Wheel profiling machine activities remain on schedule and within budget at this time.

### Issues and Solutions

- None.

## 13. Systems

### Automated Fare Collection System



#### Description

Design, manufacture, furnish, assemble, test, inspect and install the LRT Automated Fare Collection System (AFCS) for use by METRO. The AFCS consists of Ticket Vending Machines (TVMs), Ticket Validators (Validators) integrated within the TVMs, a Data Collection/Information System (DC/IS), station LANs, Hand Held Verifiers (HHVs), Revenue Collection Equipment, related data communication networks to allow the TVMs to communicate with a central fare collection computer, spare parts, tools, test equipment, documentation, software listings, training, technical assistance and warranty.



## **Progress**

- Milestone 1 Progress - Master Baseline Schedule approved.
- Milestone 2 Progress - Complete.
- Milestone 3 Progress - Awaiting completion of PDR re-submittals from the Contractor.
- Milestone 4 Progress - Preparation of Final Design Submittals underway.

## **Cost and Schedule – Variance Analysis**

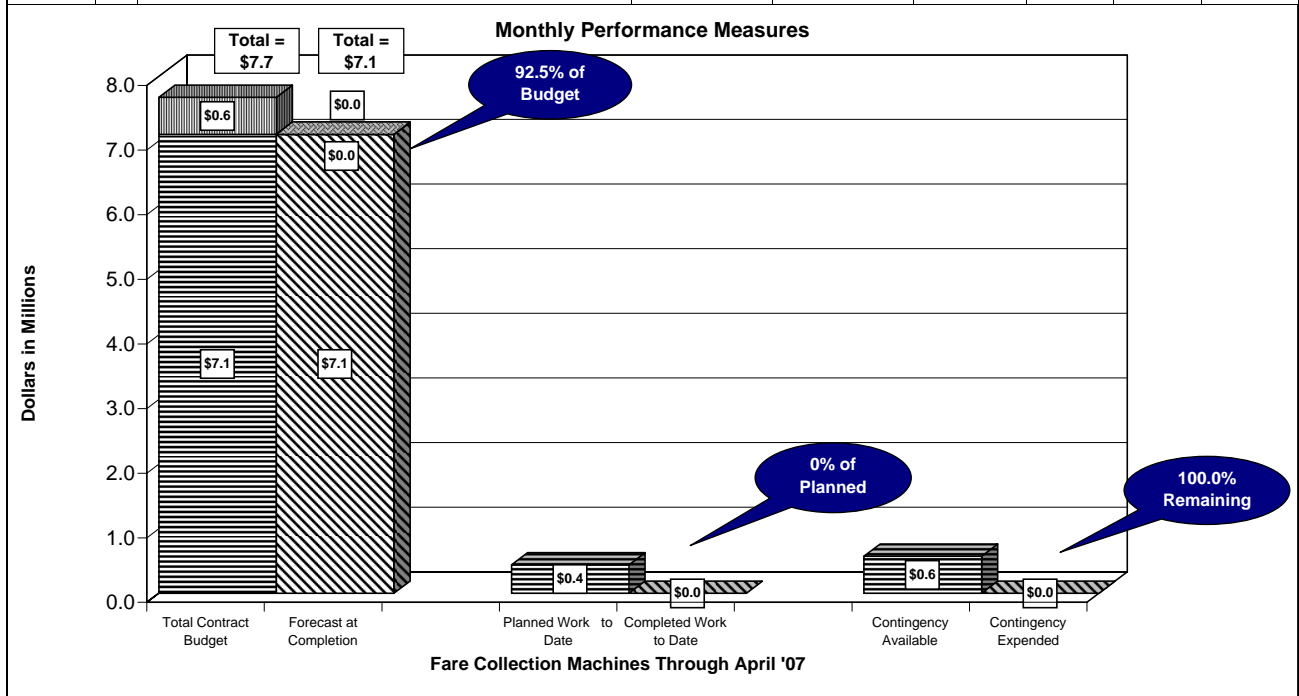
- Fare collection system schedule activities reflect impacts to interim milestones; however the Contractor has mitigated the schedule impacts to keep the project on schedule and within budget at this time. Master Baseline Schedule review comments to be incorporated into the next Monthly Progress Update Report.

## **Issues and Solutions**

- Ticket Validator Requirements. Received pricing proposal for standalone ticket validation unit. Agency has decided not to move forward with the proposal.
- Ticket Vending Machine Servicing Envelope. Continuing to await Contractor's concurrence of the revised layouts.



<b>Description:</b>		<b>Fare Collection Machines</b>
<b>PE/PA:</b>		<b>Arkady Bernshtryn</b>
<b>Contractor:</b>		<b>Scheidt &amp; Bachmann USA, Inc.</b>
<b>Resident Engineer:</b>		<b>Thomas Klings</b>
<b>Data Through:</b>		<b>N/A</b>
<b>Cumulative</b>		
1	Original Budget	\$7,100,012
2	Executed Change Orders	\$0
3	Budget Transfers	\$0
4	Current Budget (1+2+3)	\$7,100,012
5	Work Scheduled	\$442,145
6	Work Earned	\$0
7	Actual Expenditures	\$0
8	Forecast to Complete Base (4-7)	\$7,100,012
9	Change Orders Pending Execution	\$1,600
10	Forecast at Completion (7+8+9)	\$7,101,612
11	Percent Budget Expended (7/4)	0.0%
12	Percent Planned (5/4)	6.2%
13	Earned Percent Complete (6/4)	0.0%
14	Schedule Performance (6/5)	N/A
15	Cost Performance (6/7)	N/A
16	Contingency Budget	\$574,535
17	Remaining Contingency	\$574,535
18	Percent Contingency Remaining (17/16)	100.0%
<b>Period</b>		
1	Original Budget	\$0
2	Executed Change Orders	\$0
3	Budget Transfers	\$0
4	Current Budget (1+2+3)	\$7,100,012
5	Work Scheduled (Cumm - Last Period)	\$1,540
6	Work Earned (Cumm - Last Period)	\$0
7	Actual Expenditures (Cumm - Last Period)	\$0
8	Forecast to Complete Base (4-7)	\$7,100,012
9	Change Orders Pending Execution	\$0
10	Forecast at Completion (7+8+9)	\$7,100,012
11	Percent Budget Expended (7/4)	0.0%
12	Percent Planned (5/4)	0.0%
13	Earned Percent Complete (6/4)	0.0%
14	Schedule Performance (6/5)	N/A
15	Cost Performance (6/7)	N/A
16	Contingency Budget	
17	Remaining Contingency	
18	Percent Contingency Remaining (17/16)	



## Light Rail Vehicle



### Description

METRO has a Contract with KINKISHARYO International, L.L.C. (KI) for two prototype and forty eight production light rail vehicles (LRVs) for a total of fifty (50) LRVs. The contract includes prototype engineering, special tools and test equipment, training, spare parts and publications. The cars are 70 percent low-floor, double-articulated LRVs with two main “A” and “B” passenger sections and a mid “C” section, joined to form one single operating unit. There are four passenger doors on each side and an operators cab at each end. The LRVs are designed to be “street friendly” with energy absorbing bumpers and crashworthy cab ends.

### Progress

- METRO is continuing review of submittals of Contract Data Requirement List items (CDRLs), the bulk of which are test procedures and reports as well as First Article Inspection (FAI) reports and Test Procedures.
- METRO held Design Review Meeting Number 23 with KI on December 5 and 6, 2006. The main topics for presentation by KI and discussion were: special tools; spare parts; operator training course; application; closing open items; and vehicle delivery schedule.
- Final assembly began at the OMC mid February 2007.



- Changes for an Overhead Catenary System (OCS) Surveillance Camera Installation on two cars and an Automatic Passenger Counting System (APC) for the fleet are processed.
- The following describes ongoing METRO resident inspection, quality assurance, manufacturing monitoring, and site surveillance activities at the Kinki Sharyo factory in Osaka Japan (KS-J) during June 2007:
  - LRV Mass Production – 47 Trains are now in production.
  - An inspection of the grit blasting is being performed and ongoing. No defects noted.
  - A visual and dimensional inspection of underframe and car body was performed and ongoing. The dimensions were within tolerance, but defects were noted during the inspection. No defects remained after rework and re-inspection.
  - Concealment inspections were witnessed in two stages each for cars 128 and 129. All noted defects were repaired. No defects remain.
  - KS-J advised that a new rubber seal will be installed on the front headlights to improve the water tightness.
  - 5 Vehicles are in final assembly at the MOE.
  - LRV 101 thru 119 arrived at the OMC between December 2006 and April 2007. KI and METRO have just reached an agreement on two significant changes to the contract that affect activities that will be starting in the coming months. KI will perform vehicle final assembly in the OMC and KI will perform single car running tests on car 101 on METRO's designated test track. As documented in change order number 5, the test track will be available on or before April 1, 2007.
  - Cars 101 thru 124 were shipped from Osaka and will arrive at the OMC for final assembly. Truck frames and components were also shipped from Osaka as well but KI will assemble and static test completed trucks at the Hudson-Bergen maintenance shop in New Jersey. Work continues on subsequent cars in Osaka and shipments from Japan are scheduled at about four (4) cars per month.
  - Telephone, email and drawing exchange continue between KSJ and KI on carbody issues, testing procedures and schedules, subsystem interfaces and equipment mounting, interior design and equipment installation, systems application issues, material shipments, production schedule and CDRL's items. The underfloor cross beam welding issues have been addressed and weld modifications are done or ongoing from cars 107 and above. Kinkisharyo Japan will send a team to the U.S. to repair 103 – 106. Cars 101 and 102 are not affected in these modifications.

### **Cost and Schedule – Variance Analysis**

- No perceptible cost or schedule variance. Car delivery remains on schedule sufficient to meet the needs of the overall program. Cost Performance Indicator of 1.0 indicates that contract remains within budget.

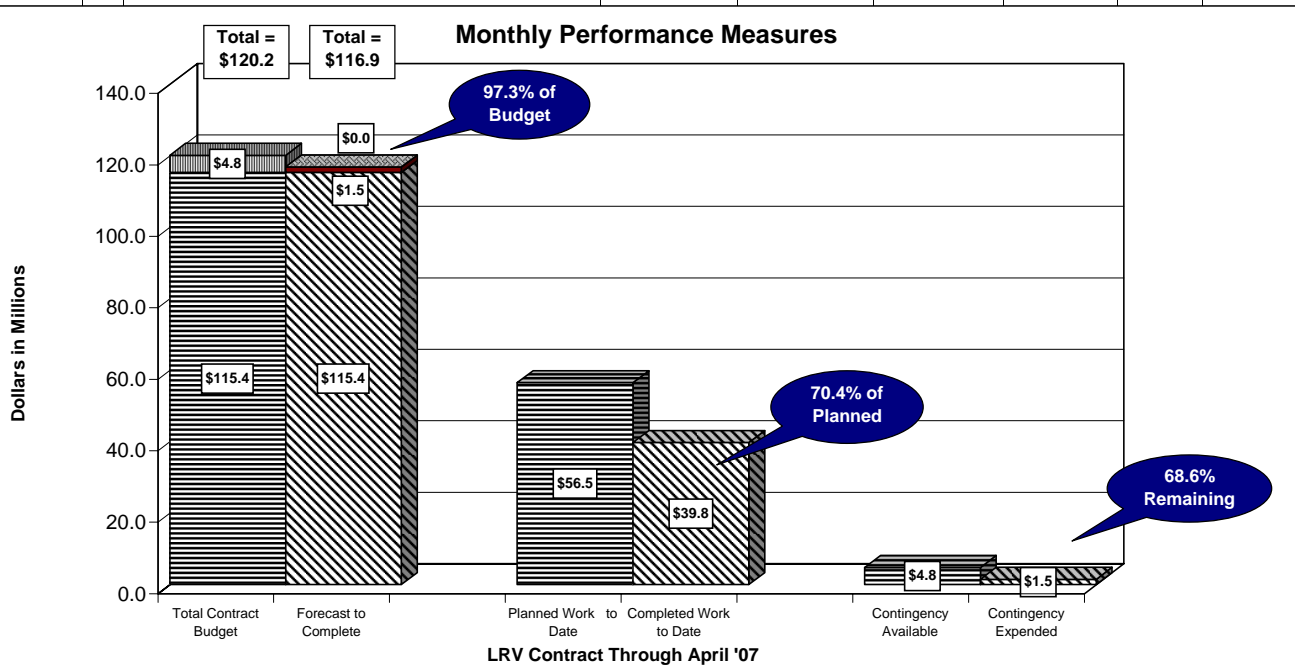


## **Issues and Solutions**

- None.



<b>Description:</b>		<b>3.7.1 Light Rail Vehicles</b>		
<b>PE/PA:</b>		<b>Steve Bethel</b>		
<b>Contractor:</b>		<b>Kinkisharo International</b>		
<b>Resident Engineer:</b>		<b>John Swanson</b>		
<b>Data Through:</b>		<b>March 31, 2007</b>		
<b>Cumulative</b>		<b>5309</b>	<b>COP Funded</b>	<b>Total</b>
1	Original Budget	\$115,369,780	\$40,050,160	\$155,419,940
2	Executed Change Orders	\$2,255,676	\$0	\$2,255,676
3	Budget Transfers	-\$750,000	\$0	-\$750,000
4	Current Budget (1+2+3)	\$116,875,456	\$40,050,160	\$156,925,616
5	Work Scheduled	\$56,499,754	N/A	\$56,499,754
6	Work Earned	\$39,760,542	N/A	\$39,760,542
7	Actual Expenditures	\$39,866,303	N/A	\$39,866,303
8	Forecast to Complete Base (4-7)	\$77,009,153	N/A	\$77,009,153
9	Change Orders Pending Execution	\$0	N/A	\$0
10	Forecast at Completion (7+8+9)	\$116,875,456	\$40,050,160	\$156,925,616
11	Percent Budget Expended (7/4)	34.1%	N/A	N/A
12	Percent Planned (5/4)	48.3%	N/A	N/A
13	Earned Percent Complete (6/4)	34.0%	N/A	N/A
14	Schedule Performance (6/5)	0.70	N/A	N/A
15	Cost Performance (6/7)	1.00	N/A	N/A
16	Contingency Budget	\$4,802,785	\$2,135,840	\$6,938,625
17	Remaining Contingency	\$3,297,109	\$2,135,840	\$5,432,949
18	Percent Contingency Remaining (17/16)	68.6%	N/A	N/A
<b>Period</b>				
1	Original Budget	\$115,369,780	\$40,050,160	\$155,419,940
2	Executed Change Orders	\$0	\$0	\$0
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$116,875,456	\$40,050,160	\$156,925,616
5	Work Scheduled (Cumm - Last Period)	\$6,375,083	N/A	\$6,375,083
6	Work Earned (Cumm - Last Period)	\$11,281,670	N/A	\$11,281,670
7	Actual Expenditures (Cumm - Last Period)	\$7,235,187	N/A	\$7,235,187
8	Forecast to Complete Base (4-7)	\$109,640,269	N/A	\$109,640,269
9	Pending Changes	\$0	N/A	\$0
10	Forecast at Completion (7+8+9)	\$116,875,456	\$40,050,160	\$156,925,616
11	Percent Budget Expended (7/4)	6.2%	N/A	N/A
12	Percent Planned (5/4)	48.3%	N/A	N/A
13	Earned Percent Complete (6/4)	48.3%	N/A	N/A
14	Schedule Performance (6/5)	1.00	N/A	N/A
15	Cost Performance (6/7)	1.00	N/A	N/A
16	Contingency Budget	\$4,802,785	\$2,135,840	\$6,938,625
17	Remaining Contingency	\$3,297,109	\$2,135,840	\$5,432,949
18	Percent Contingency Remaining (17/16)	68.6%	N/A	N/A



Note: COP Funded Data unavailable, performance date and graph represent only the Federal 5309 portion

## Signals and Communications



### Description

The LRT Signal and Communications (SC) Contract provides for the final design, manufacturing, installation, and testing of the integrated signal and communication system.

Major work elements include train signal equipment and communication hardware and software for controlling train movements through crossovers and interlockings, fiber-optic backbone communication transmission system (CTS), closed-circuit TV (CCTV), public address system (PA), variable message boards (VMB), Train Control System, Vehicle Management (VMS), Radio System, PABX and Telephone System including emergency telephones at Park-and-Rides and Transit Centers, Supervisory Control and Data Acquisition System (SCADA), installation of workstations and equipment in the Operations Control Center (OCC) and at the Maintenance and Storage Facility (OMC), six site-built signal buildings and three signal buildings combined with traction power substations. The work scope also includes installation of fiber-optic cables for street traffic control systems for the Cities of Phoenix, Tempe and Mesa, and installation of fiber-optic cables for ASU.

### Progress

- Signal Buildings and Signal Cases
  - Continuing electrical rough-in at Signal Building Number 1 and 2.
  - Installation of irrigation and landscaping at Signal Building Number 4.



- Signaling System
  - Dobson Interlocking Factory Acceptance Testing (FAT) next week. This will be the final FAT for the Signaling System.
  - Substantial Completion of Milestone 1A to support the Test Track.
- Communications System
  - Continuing to resolve Final Design of the Communication System issues. MEC to resubmit Final Design Submittals.
  - Preparing Inspection and Testing Plan to support Communication System Factory Acceptance Testing.
  - Substantial Completion of Milestone 1B to support the OMC Communications.
- OCC Build Out
  - Performed final core drill at the OCC Building. Currently performing punchlist activities.
- Coordinating with other Contracts
  - LS5 - UPRR/1st Crossing. Beginning installation 1st St./UPRR Crossing Case and signal cables.
  - Station Finishes. Coordination of turnover and access activities between Station Finishes Contractor and Signals and Communications Contractor.

#### **Cost and Schedule – Variance Analysis**

- The contract is in the early stages of submittals, design and procurement with some field construction work in progress. Field construction to date has included the civil and architectural parts of five signal buildings, signal equipment installation at three signal buildings and two shared substations, architectural work at the OCC, and track bonding at OMC Yard and LS4 Yard Entrance.

#### **Issues and Solutions**

- Fiber and Microduct Installation. Awaiting MEC procurement for blowing demonstration of microduct fiber by mid-May 2007.

**Construction Photographs**



SB number 2 - Installation of Exterior Metal Siding



SB number 6 - Installation of Overhead Cable Trays



SB number 4 - Installation of Irrigation System



Yard Lead - Switch Machine Circuit Adjustment



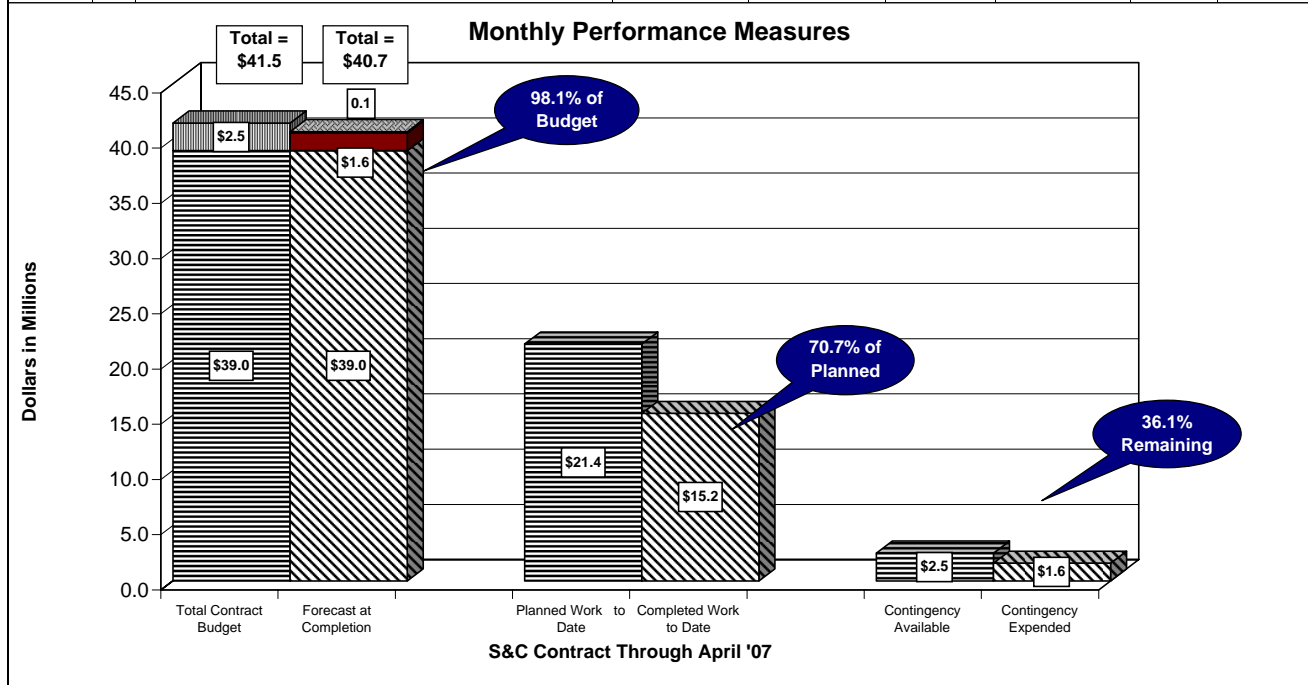
OCC Garage - Pulling Electrical Cables



OCC - Operations Room Nearly Complete



	<b>Description:</b>	<b>3.7.4 Signals &amp; Communications</b>		
	<b>PE/PA:</b>	Leslee O' Conell		
	<b>Contractor:</b>	Mass Electric		
	<b>Resident Engineer:</b>	Steve Kyauk		
	<b>Data Through:</b>	March 15, 2007		
	<b>Cumulative</b>	<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Original Budget	\$37,476,762	\$1,480,805	\$38,957,567
2	Executed Change Orders	\$1,179,361	\$417,561	\$1,596,922
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$38,656,123	\$1,898,366	\$40,554,489
5	Work Scheduled	\$21,217,138	\$225,554	\$21,442,692
6	Work Earned	\$15,073,598	\$82,970	\$15,156,568
7	Actual Expenditures	\$15,318,250	\$30,000	\$15,348,250
8	Forecast to Complete Base (4-7)	\$23,337,873	\$1,868,366	\$25,206,239
9	Change Orders Pending Execution	\$53,455	\$53,000	\$106,455
10	Forecast at Completion (7+8+9)	\$38,709,578	\$1,951,366	\$40,660,944
11	Percent Budget Expended (7/4)	39.6%	1.6%	37.8%
12	Percent Planned (5/4)	54.9%	11.9%	52.9%
13	Earned Percent Complete (6/4)	39.0%	4.4%	37.4%
14	Schedule Performance (6/5)	0.71	0.37	0.71
15	Cost Performance (6/7)	0.98	2.77	0.99
16	Contingency Budget	\$2,388,332	\$111,942	\$2,500,274
17	Remaining Contingency	\$1,208,971	-\$305,619	\$903,352
18	Percent Contingency Remaining (17/16)	50.6%	-273.0%	36.1%
	<b>Period</b>			
1	Original Budget	N/A	N/A	N/A
2	Executed Change Orders	\$23,652	\$417,561	\$441,213
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$38,656,123	\$1,898,366	\$40,554,489
5	Work Scheduled (Cumm - Last Period)	\$1,063,986	\$0	\$1,063,986
6	Work Earned (Cumm - Last Period)	\$1,119,048	\$0	\$1,119,048
7	Actual Expenditures (Cumm - Last Period)	\$1,108,259	\$0	\$1,108,259
8	Forecast to Complete Base (4-7)	\$37,547,864	\$1,898,366	\$39,446,230
9	Change Orders Pending Execution	\$23,217	-\$417,561	-\$394,344
10	Forecast at Completion (7+8+9)	\$38,679,340	\$1,480,805	\$40,160,145
11	Percent Budget Expended (7/4)	2.9%	0.0%	2.7%
12	Percent Planned (5/4)	2.8%	0.0%	2.6%
13	Earned Percent Complete (6/4)	2.9%	0.0%	2.8%
14	Schedule Performance (6/5)	1.05	#N/A	1.05
15	Cost Performance (6/7)	1.01	N/A	1.01
16	Contingency Budget	\$2,388,332	\$111,942	\$2,500,274
17	Remaining Contingency	\$1,208,971	-\$305,619	\$903,352
18	Percent Contingency Remaining (17/16)	50.6%	-273.0%	36.1%



## Traction Electrification System



### Description

The Traction Electrification System (TES) provides the electric power required to operate the Light Rail Vehicles (LRV). There are two main components to the TES, these are: Traction Power Substations (TPSS) that convert incoming utility power to DC power, which is used by the LRV and the Overhead Contact System (OCS), which distributes the DC power to the trackway. There are 15 Site Built 2,000 kW substations. Twelve of the substations are 22 feet by 44 feet and three are 22 feet by 57 feet. The substation buildings will be constructed of integrally colored concrete block on landscaped sites. The OCS is comprised of 20 route miles of double-track low-profile overhead catenary. The OCS will be installed on over 1,300 round painted poles. The nominal system voltage is 750 VDC. The nominal height of the OCS above the roadway is 18 feet, 6 inches.

The TES Contract provides final design of the TPSS and OCS, manufacturing, fabrication, installation and testing.

### Progress

- Traction Power Substation Number 1 and 2
  - Landscaping progressed.
- Traction Power Substation Number 3 and 4
  - Concrete Masonry Unit block construction was completed.
  - Installation of the structural steel beam, roof, metal stud framing, and parapet wall commenced.



- Application of the di-electric epoxy floor commenced
- Traction Power Substation Number 5
  - TPSS Equipment installation progressed.
  - Conduit and Cable Tray installation progressed.
- Traction Power Substation Number 6
  - Curb installations progressed.
  - Irrigation installation commenced.
- Traction Power Substation Number 7
  - Interior rough-in activities progressed.
  - Installation of mounted TPSS equipment progressed.
  - Exterior Finishes activities progressed.
- Traction Power Substation Number 8
  - TPSS Equipment installation progressed.
- Traction Power Substation Number 9, 15, and 16
  - Testing and Commissioning completed pending submittal of the certified Test reports.
  - Landscaping commenced at TPSS Number 9.
- Traction Power Substation Number 10
  - TPSS Equipment installation commenced.
  - Curb installations commenced.
- Traction Power Substation Number 11
  - Interior Rough-In was completed.
  - TPSS Equipment installation commenced.
  - HVAC installation commenced.
  - Curb installations commenced.
- Traction Power Substation Number 13
  - Ductbanks installation progressed.
  - Excavation, installation and backfill of the ground grid were completed.
  - Excavation of the building footings commenced.



- Overhead Contact System
  - North OMC Yard and Test Track (Wire Runs 35 through 38).
    - Installation of OCS for Test Track has been completed. Minor adjustments remain.
    - Acceptance Measurements and Tests in progress.
      - Live Line Vehicle Test was performed.
      - Agency's High Speed Test run was performed.
  - South OMC Yard West Approach (Wire Runs SL, BP, M1 through M5, and SW11 and SW12 Tracks).
    - Acceptance Measurements and Tests in progress.
      - Live Wire Vehicle Test.
  - LS-4 Washington St. from E/O 56<sup>th</sup> St. to E/O Center Parkway (Wire Runs 39 and 40).
    - OCS Pole installation commenced.
- Site Access/Permits
  - TPSS Number 14 was submitted to Mesa Building Safety for initial review. Comments are being addressed by the designer. Revised drawings were received from the designer in late April and will be submitted for permit in early May. Permit should be available by the end of May.
  - TPSS Number 12 (McClintock Park-and-Ride) had utility impacts with the mobile home park to the east of the site. Work has been ongoing since late February and is scheduled for completion the first week of May. The TES Contractor has picked up the grading and drainage permit and the building permit is available for pickup from Tempe.
- Coordination with other Contracts/Entities
  - Ongoing coordination meetings are being held with the Facility Contractors. A weekly meeting is held with the OMC Resident Engineer and Contractor to coordinate the systems interfaces.

### **Cost and Schedule – Variance Analysis**

- The contract is in the final stages of design and procurement with factory design and production tests in progress. Field construction to date has included the civil and architectural parts of fourteen out of the sixteen traction power substations, some TPSS electrical equipment installation, OCS components installation in the OMC yard, OMC shop and Line Section 4 Test Track areas, and start up testing and commissioning at the OMC and Line Section 4 Test Track.

## Issues and Solutions

- Mitigation Schedule. The Mitigation Schedule has been accepted with the exception of the cost impacts. Metro is currently in a series of negotiations for the Contractor Mitigation Schedule Cost Impacts. A change order which revises the milestone and access dates is currently being reviewed by the Agency.

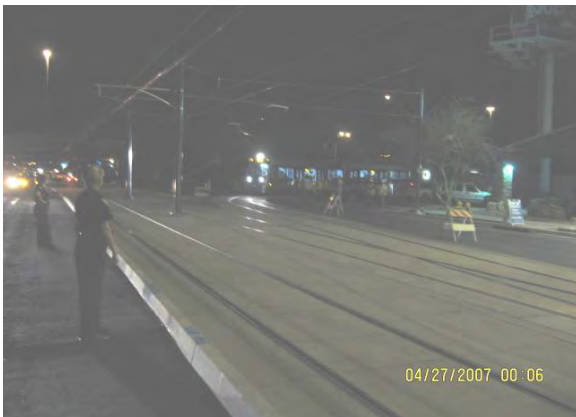
## Construction Photographs



LS4 OCS Pole Installation (WR 39 and 40)



HVAC Installation TPSS Number 11



Test Track Live Wire Test (WR 39 and 40)



South Yard West Approach Live Wire Test Run



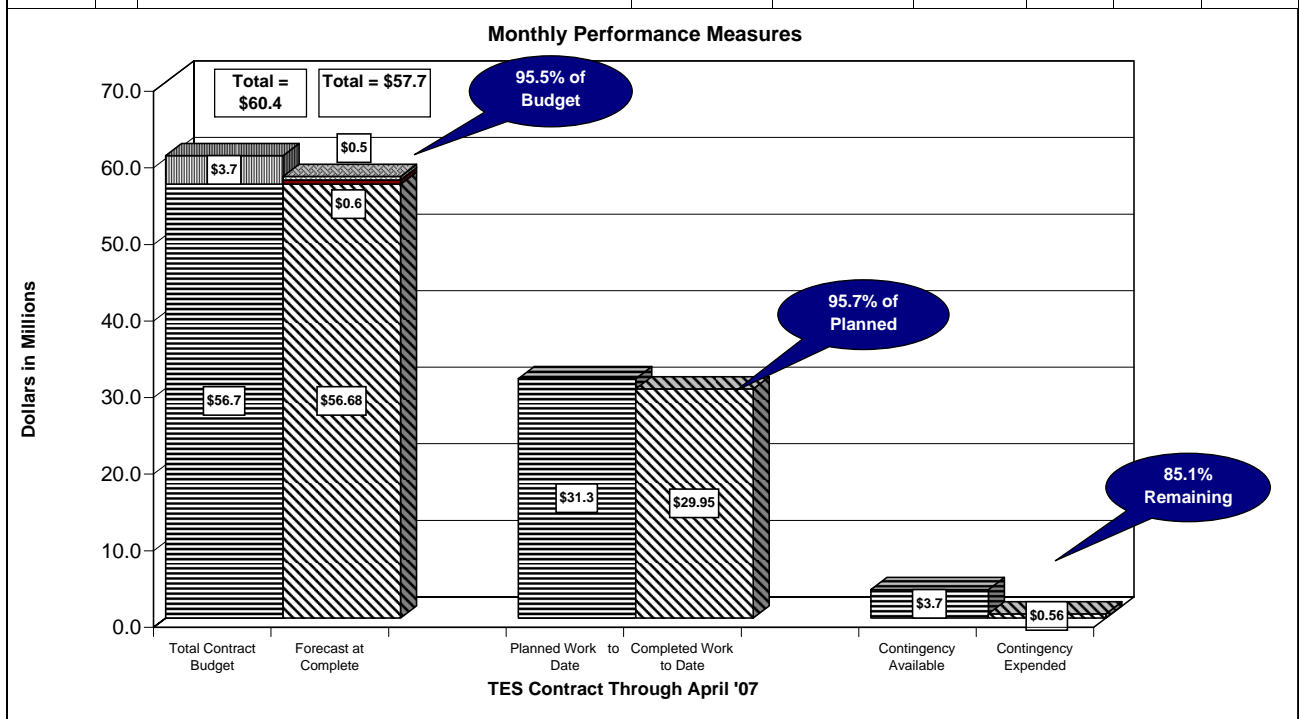
TPSS Equipment Installation TPSS Number 10



Anchoring of the TPSS Equipment at TPSS Number 5



<b>Description:</b>		<b>3.7.3 Traction Electrification Systems</b>	
<b>PE/PA:</b>		<b>Alan Friend</b>	
<b>Contractor:</b>		<b>Mass Electric Corporation</b>	
<b>Resident Engineer:</b>		<b>Ron Wong</b>	
<b>Data Through:</b>		<b>March 15, 2007</b>	
Cumulative		<b>5309</b>	
1	Budget	\$56,681,003	
2	Executed Change Orders	\$555,760	
3	Budget Transfers	\$0	
4	Current Budget (1+2+3)	\$57,236,763	
5	Work Scheduled	\$31,285,350	
6	Work Earned	\$29,953,639	
7	Actual Expenditures	\$29,908,043	
8	Forecast to Complete Base (4-7)	\$27,328,720	
9	Change Orders Pending Execution	\$473,330	
10	Forecast at Completion (7+8+9)	\$57,710,093	
11	Percent Budget Expended (7/4)	52.3%	
12	Percent Planned (5/4)	54.7%	
13	Earned Percent Complete (6/4)	52.3%	
14	Schedule Performance (6/5)	0.96	
15	Cost Performance (6/7)	1.00	
16	Contingency Budget	\$3,721,000	
17	Remaining Contingency	\$3,165,240	
18	Percent Contingency Remaining (17/16)	85.1%	
Period			
1	Budget	N/A	
2	Executed Change Orders	\$0	
3	Budget Transfers	\$0	
4	Current Budget (1+2+3)	\$57,236,763	
5	Work Scheduled (Cumm - Last Period)	\$1,396,987	
6	Work Earned (Cumm - Last Period)	\$2,013,648	
7	Actual Expenditures (Cumm - Last Period)	\$1,678,339	
8	Forecast to Complete Base (4-7)	\$55,558,424	
9	Change Orders Pending Execution	\$83,130	
10	Forecast at Completion (7+8+9)	\$57,319,893	
11	Percent Budget Expended (7/4)	2.9%	
12	Percent Planned (5/4)	2.4%	
13	Earned Percent Complete (6/4)	3.5%	
14	Schedule Performance (6/5)	N/A	
15	Cost Performance (6/7)	N/A	
16	Contingency Budget	\$3,721,000	
17	Remaining Contingency	\$3,165,240	
18	Percent Contingency Remaining (17/16)	85.1%	





## **Rail Activation/System Integration**

### **Description**

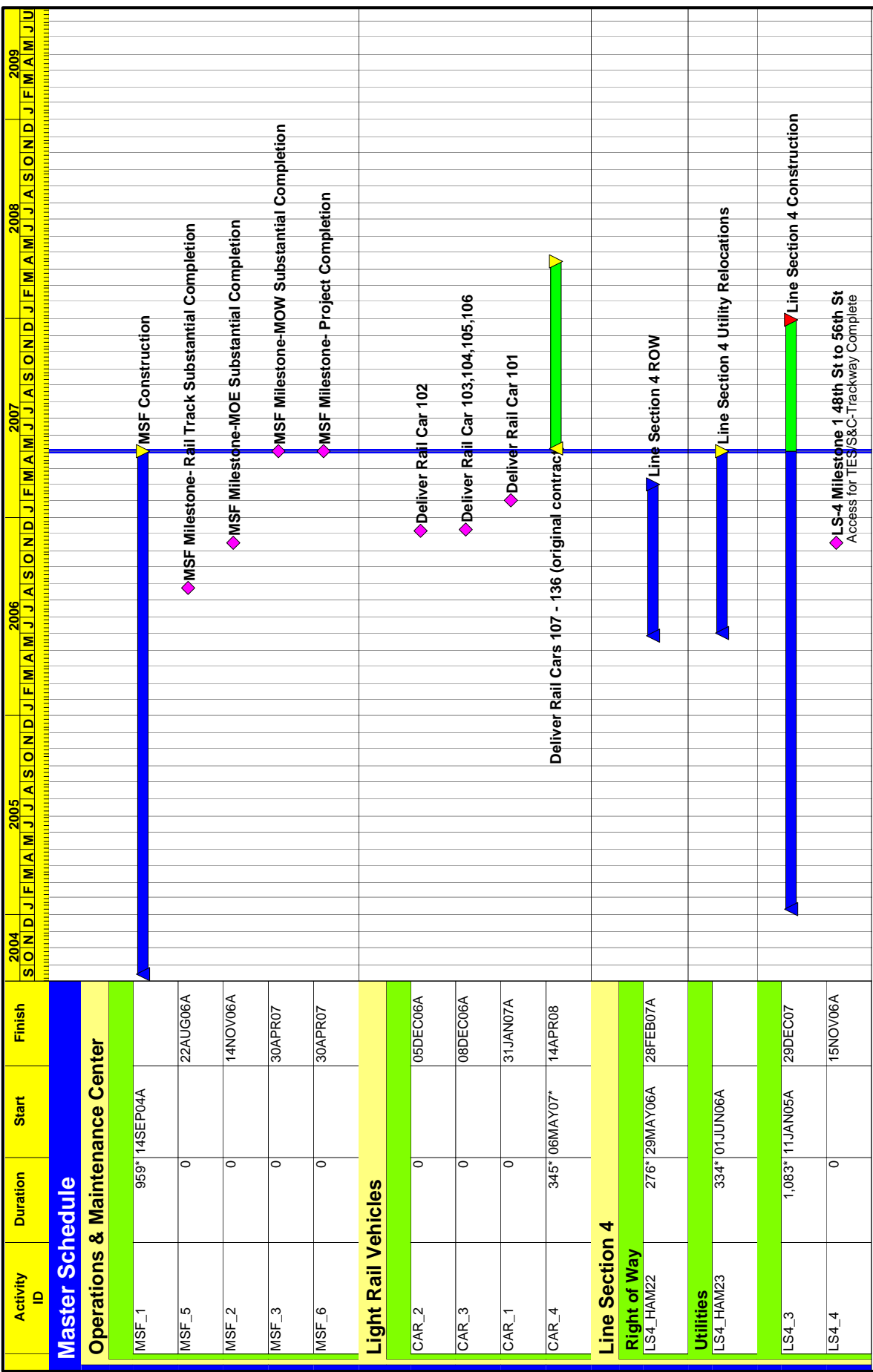
The Rail Activation Plan was developed in June, 2006 to outline the process and organizational approach that METRO will employ to oversee the testing and start-up of the 20 mile light rail CP/EV system. The Rail Activation process is used to transition the Light Rail Project from the construction phase, through testing, pre-revenue operations, and finally into revenue service. The Rail Activation Team is a diverse group of Transit professionals which consists of METRO staff from Operations, Maintenance, System Engineering, Safety/Security, and Media relations, along with CAC, PMC, GEC and City staff.

This same group will participate in and oversee the System Integration process, which is the final testing process before sections of the alignment can be activated for use. The System Integrated tests are designed to prove that the various systems within the alignment work well together and meet design criteria. The primary goal of the Rail Activation Team is to ensure the project achieves revenue operations in a timely and safe manner.

Presently, the primary focus of the Rail Activation Team is the OMC yard and test track area. The test track has been defined as the area just east of Highway 143 to 56 Street.

### **Progress**

- METRO and consulting staff are developing test plans and procedures related to track allocation, rail/wheel interface, clearance and LRV dynamic testing.
- METRO Operations and Maintenance Personnel (including contractors) and consulting staff have completed numerous walk-throughs of the test track. Similar activities are planned with the City of Phoenix Police Department to finalize the traffic management safety plan.
- METRO staff has commenced occupancy of the Operations and Maintenance Center (OMC).
- OMC Yard and Test Track Activation Schedule
  - A Clearance cart was produced by Mass Electric for dynamic clearance testing through out the alignment.
  - Clearance testing in the OMC yard and test track with the clearance cart is complete.
  - Live wire testing in the entire yard and test track is complete.
  - The LRV number 101 and TPSS number 15 and TPSS number 9 will continue to be tested and adjusted as necessary.
  - April 27, 2007 LRV 101 began high speed testing on test track.
  - Track Allocation meetings are being held every Wednesday at the OMC conference room.
  - Track Access Training is ongoing every Monday at the OMC.



Sheet 1 of 10 Presentation Schedule

METRO Rail Program Control  
Central Phoenix/East Valley LRT Project  
May 1, 2007

7005

Start Date: 01AUG04  
Finish Date: 26DEC08  
Data Date: 01MAY07  
Run Date: 07MAY07 11:57

Legend:  
▶ Early Bar  
▶ Progress Bar  
▶ Critical Activity

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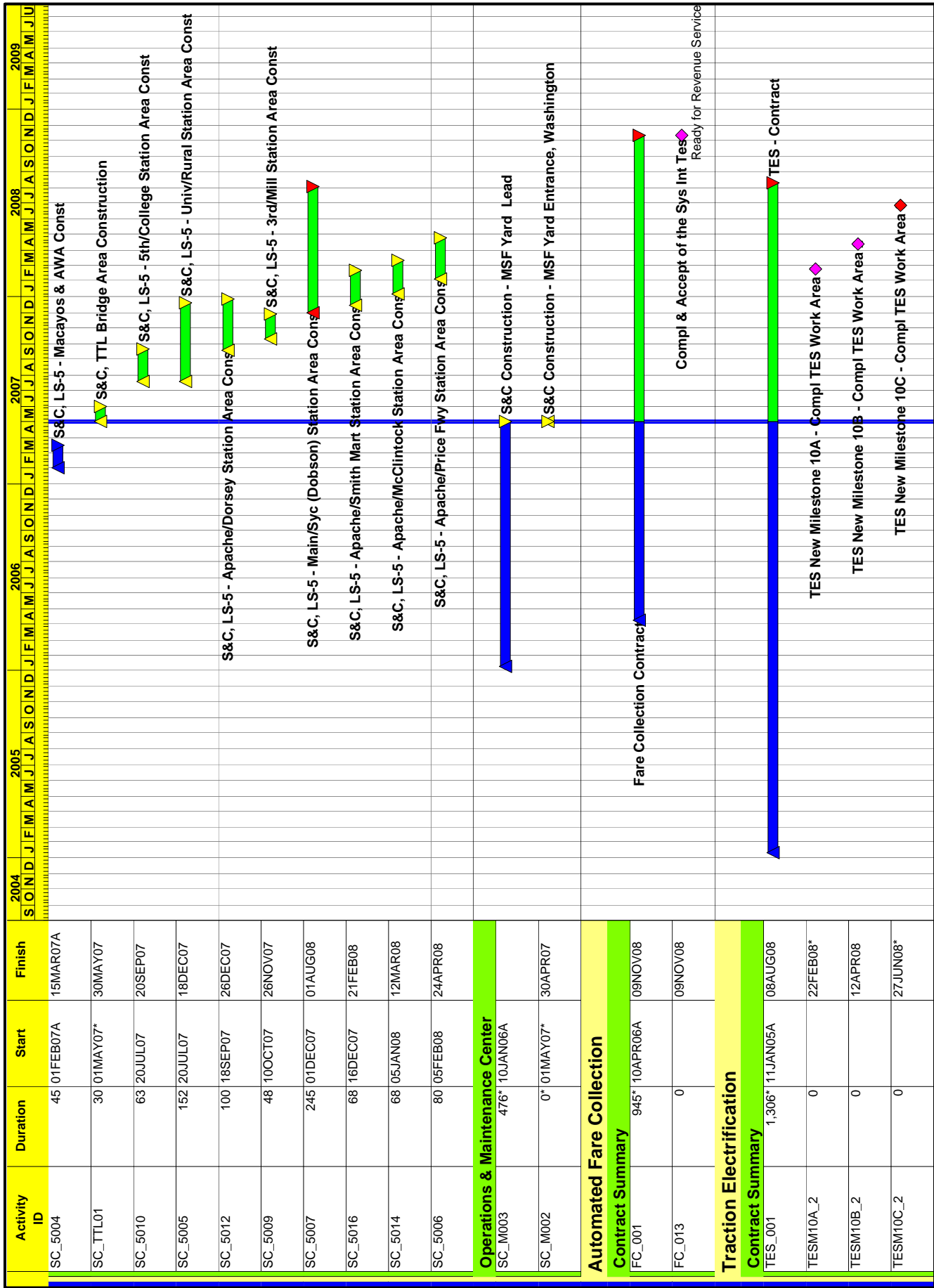




















## Acronyms

AASHTO	American Association of State Highway and Transportation Officials
AC	Alternating Current
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
ADOT	Arizona Department of Transportation
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
APM	Automatic People Mover
APPROX	Approximately
APS	Arizona Public Service
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASTM	American Society for Testing and Materials
ASU	Arizona State University
ATS	Automatic Train Stop
AT&T	American Telephone and Telegraph Company
AWG	American Wire Gauge
AWS	American Welding Society
BTU	British Thermal Unit
CAC	Construction Administration Consultant
CALCS	Calculations
CCTV	Closed Circuit Television
CFM	Cubic Feet Per Minute
CFS	Cubic Feet Per Second
CMU	Concrete Masonry Unit
CNPA	Concurrent Non-Project Activity
COE	US Corp of Engineers
COM	City of Mesa
COMM	Communications
COP	City of Phoenix
COT	City of Tempe
CPU	Central Processing Unit
CRSI	Concrete Reinforcing Steel Institute
CRT	Cathode Ray Tube
CTS	Carrier Transmission System
CWR	Continuous Welded Rail
CY	Cubic Yard
DBE	Disadvantaged Business Enterprise



DC	Direct Current
DSD	Development Services Department
DWG	Drawing(s)
EPA	Environmental Protection Agency
EST	Estimate, Estimated
FAA	Federal Aviation Administration
FAI	First Article Inspection
FHWA	Federal Highway Administration
FPS	Feet Per Second
FTA	Federal Transit Administration
GEC	General Engineering Consultant
HVAC	Heating, Ventilating, Air Conditioning
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronic Engineers
IFB	Invitation For Bid
IPI	In Process Inspection
LAN	Local Area Network
LF	Linear Feet
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LS	Line Section
MAG	Maricopa Association of Governments
MEC	Mass Electric Company
MISC	Miscellaneous
MOE	Maintenance of Equipment
MOW	Maintenance of Way
MPH	Miles Per Hour
MSF	Maintenance and Storage Facility
MUTCD	Manual on Uniform Traffic Control Devices
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NRHP	National Register of Historic Places
OCC	Operations Control Center
OCS	Overhead Contact System
O&M	Operations And Maintenance
OMC	Operations and Maintenance Center



OPS	Operations
PA	Public Address
PAN	Pantograph
PBAX	Telephone Private Exchange And Controls
PCI	Prestressed Concrete Institute
PSI	Pre Shipment Inspection
PED	Pedestrian
PMC	Program Management Consultant
PNR	Park-and-Ride
PSF	Pounds Per Square Foot
PSI	Pounds Per Square Inch
PTZ	Pan Tilt Zoom
QA	Quality Assurance
QC	Quality Control
RE	Resident Engineer
RFI	Request For Information
RI	Receiving Inspection
RPM	Revolutions Per Minute
ROW	Right-of-Way
RTU	Remote Terminal Unit
S&C	Signals and Communications
SCADA	Supervisory Control and Data Acquisition
SDI	Steel Deck Institute
SJI	Steel Joist Institute
SONET	Synchronous Optical Network
SPEC	Specification
SRP	Salt River Project
SSPC	Structural Steel Painting Council
SSW	Sundt/Stacy and Witbeck
SSWJV	Sundt/Stacy and Witbeck Joint Venture
SWG	Southwest Gas Corporation
TBD	To Be Determined
TCE	Temporary Construction Easement
TES	Traction Electrification System
TTLB	Tempe Town Lake Bridge
TPSS	Traction Power Substation
TTY	Text Teletype ADA Device
TVM	Ticket Vending Machine



TWC	Train to Wayside Communications
UBC	Uniform Building Code
UL	Underwriters Laboratories Incorporated
UPRR	Union Pacific Railroad
UPS	Uninterruptible Power System
VCR	Video Cassette Recorder
VETAG	Vehicle Tagging System
VMB	Variable Message Board
VMR	Valley Metro Rail
VMS	Vehicle Management System
WAN	Wide Area Network