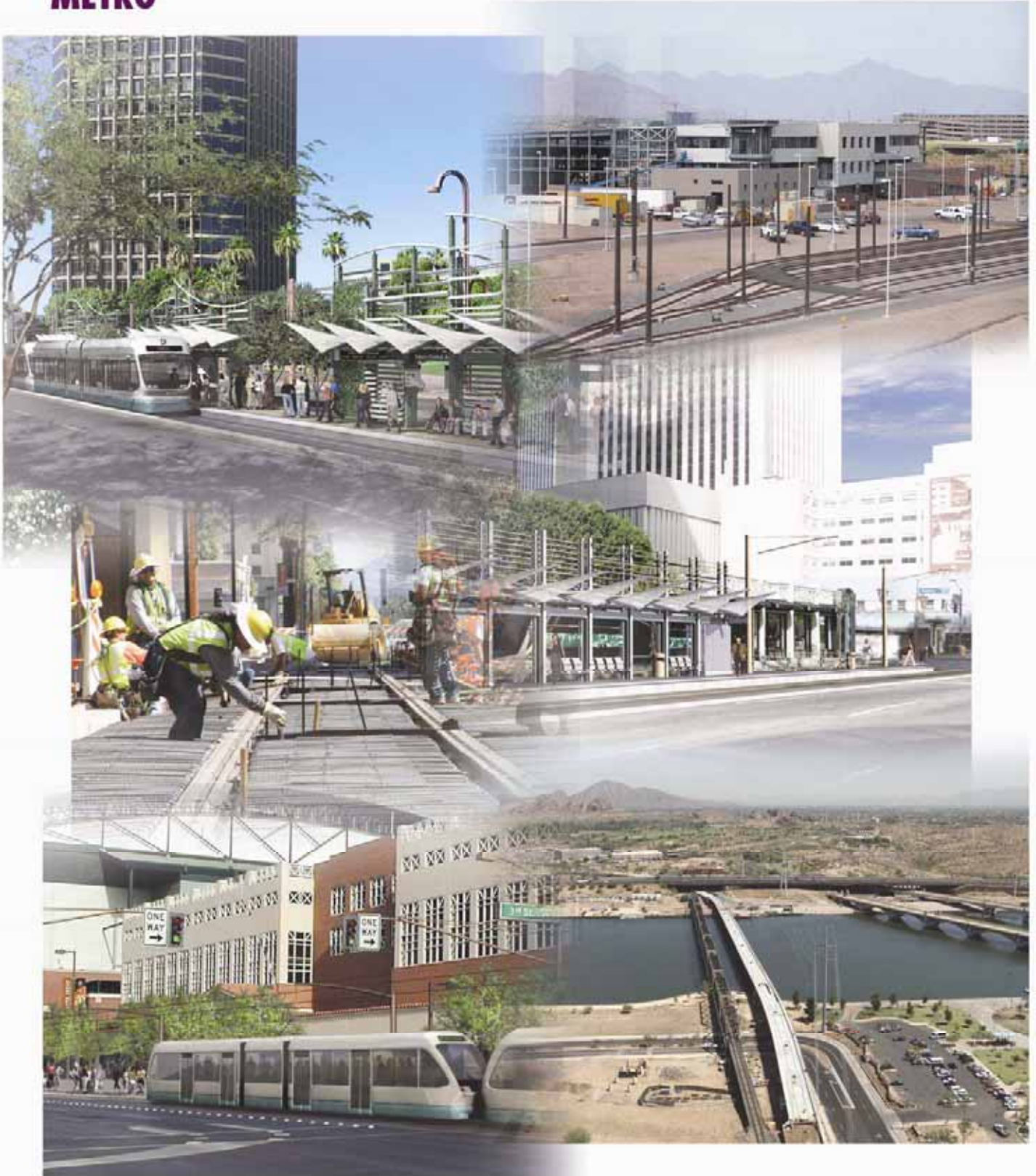




# LIGHT RAIL PROGRESS REPORT

Central Phoenix/East Valley Light Rail Transit Project







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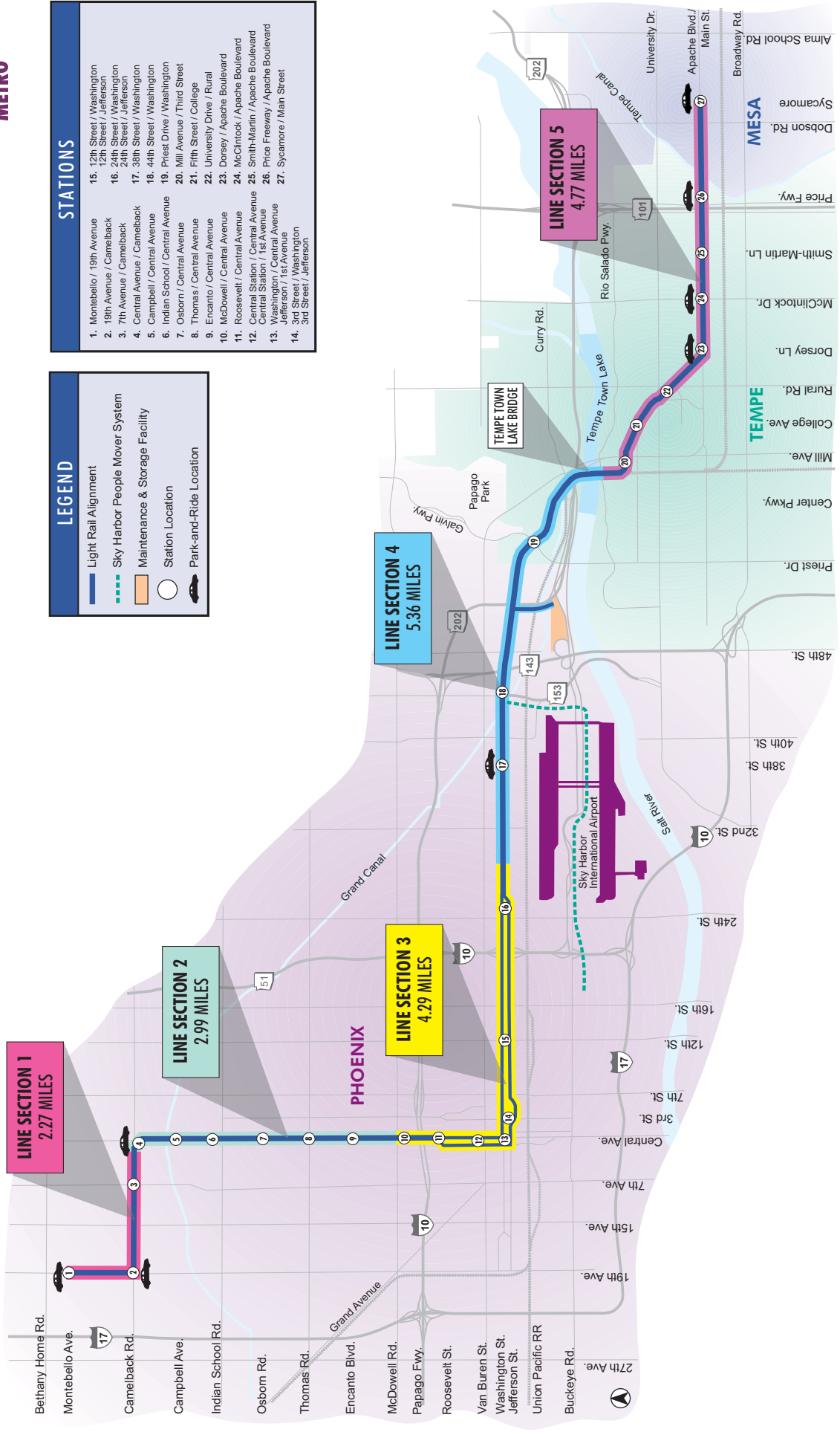
## 1. Executive Summary

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 a 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 Billion, with a Revenue Operations Date of December 2008.

Major milestones/accomplishments this month include commencement of construction of the Station Finishes contract, both at the Central and Camelback Transit Center and Van Buren/1st Ave. station. The Line Section 2 contractor has also begun work at Central and Camelback. Significant progress in the area of permits includes the crew building at the 19th/Montebello Transit Center and the grading permit for the 44th St. Transit Center, as well as four TPSS buildings. Critical utility relocations were completed in LS 4 and LS 5. The south side of the Tempe Canal Bridge was completed, and OCS wire installation has commenced in the yard. The Town Lake Bridge contractor beat the turnover milestone for LS 4 track installation, and 20 LRVs are now in production. The traffic signal equipment delivery contract and six of seven Park-and-Ride designs are now 100 percent complete.

The project remains on schedule and within budget. While there are still approximately 80 parcels not yet under City control, only a small number of those are negatively impacting construction. Nine additional parcels came under City control since last month, and 15 additional parcels became available for construction. Presently, 90 percent of the required properties are now under City control and 82 percent of the properties are available for construction. Now that the revised Master Schedule has been issued, attention turns to negotiations with contractors. During the last month, follow-up meetings continued with the Line Section Contracts, TES, S&C and Station Finishes. These reviews are now focusing on the development of the contractors' revised detailed schedules, supporting the new Master Schedule. There continues to be a forecast of sufficient contingency remaining to complete the project within budget.

# LIGHT RAIL STARTER SEGMENT



### LEGEND

- Light Rail Alignment
- Sky Harbor People Mover System
- Maintenance & Storage Facility
- Station Location
- Park-and-Ride Location

### STATIONS

1. Montebello / 19th Avenue
2. 19th Avenue / Camelback
3. 7th Avenue / Camelback
4. Central Avenue / Camelback
5. Campbell / Central Avenue
6. Indian School / Central Avenue
7. Osborn / Central Avenue
8. Thomas / Central Avenue
9. Encanto / Central Avenue
10. McDowell / Central Avenue
11. Roosevelt / Central Avenue
12. Central Station / Central Avenue
13. Washington / Central Avenue
14. Jefferson / Washington
15. 12th Street / Washington
16. 24th Street / Washington
17. 38th Street / Jefferson
18. 44th Street / Washington
19. Priest Drive / Washington
20. Mill Avenue / Third Street
21. Fifth Street / College
22. University Drive / Rural
23. Dorsey / Apache Boulevard
24. McClintock / Apache Boulevard
25. Smith-Martin / Apache Boulevard
26. Price Freeway / Apache Boulevard
27. Sycamore / Main Street

METRO  
CONTRACT LOG - JULY 2006

ITEM	CONTRACT NUMBER	CONTRACT DESCRIPTION	CONTRACTOR
<b>1. PROGRAM MANAGEMENT &amp; ENGINEERING</b>			
1	LRT-99-001	GEC - DES / FE S / E	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 . Bearl & Associates LLC and Parsons Transportation Group, Inc., a Joint Venture
5	LRT-03-005-CAC	Construction Administration Services	Post, Buckley, Schuh & Jemigan, 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 Stacey & Wibeck, Joint Venture
8	LRT-04-020-LS1	Line Section 1	Kiewit Western Co
9	LRT-04-019-LS2	Line Section 2	Hezog Contracting Corp
10	LRT-04-021-LS3	Line Section 3	Archer Western Contractors
11	LRT-04-018-LS4	Line Section 4	Sundt Stacey & Wibeck, Joint Venture
12	LRT-04-022-LS5	Line Section 5	Sundt Stacey & Wibeck, Joint Venture
13	LRT-05-042-PNR	Park and Rides	Undetermined
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-W PM	Wheel Polishing 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.
<b>4. PUBLIC ART</b>			
21	02-002-04	LS4 Design Team Artist/Station Artist	Laurie Lundquist
22	02-002-03	LS2 Design Team Artist/Station Artist	Ian Averbuch
23	02-002-04	LS1 Design Team Artist/Station Artist	Robert Adams
24	02-002-05	LS5 Design Team Artist/Station Artist	Norie Sato/ Bill Will
25	02-002-01	LS3 Design Team Artist	Janet Zweig
26	05-041-ART	Bridge Design Team Artist	Buster Simpson
27	02-002-07	LS3 Design Team Artist	Laurie Lundquist
28	02-002-08	LS3 Design Team Artist	Robert Adams
29	02-002-09	44th Street Station Artist	Mona Higuchi
30	02-002-10	38th Street Station Artist	Stuart Keefer/ Michael Mchnic
31	02-002-11	Central/Roosevelt Station Artist	Peter Richards
32	02-002-12	Central/McDowell Station Artist	Michael Maglich
33	02-002-13	Fifth Street Station Artist	Stephen Farley
34	02-002-14	Third Street Station Artist	Chiff Garten
35	02-002-15	Central Station, Station Artist	Ries Njami
36	02-002-16	12th Street Station Artist	Victor Zabala
37	02-002-17	Fifth Street/College Station Artist	Tad Savinar
38	02-002-18	Central/Campbell Station Artist	Al Price
39	02-002-19	Central/Indian School Station Artist	Mary Lucking
40	02-002-20	Central/Osborn Station Artist	Thomas Sayre
41	02-002-21	Central/Thomas Station Artist	Brian Golibbom
42	02-002-23	Third Street/Mills Station Artist	Catherine Wügerer
43	02-002-24	Apache Stations - Lighting Artist	Dan Conson
44	02-002-25	Apache Stations - Cultural Weave Artist	Christine Bourdette
45	02-002-26	Apache Stations - Vertical Objects Artist	Sukang Zhao
46	02-002-27	Apache Stations - Paving Artist	Benson Shaw
47	02-002-28	Longfellow Station Artist	Brad Konick
48	02-002-29	19th Avenue /Camelback Station Artist	Josh Garber
49	02-002-30	7th Avenue /Camelback Station Artist	Nuba Owens
50	02-002-31	24th Street Station Artist	Kevin Berry
51	02-002-32	Central/Encanto Station Artist	Jamex & Eharder la Torre
<b>5. MISC. CONSTRUCTION &amp; SERVICES</b>			
52	LRT-05-046-ERS	Environmental Remediation Service	Environmental Response Inc
53	LRT-04-031-PCS	Power Consulting Services	RW Beck
54	LRT-06-052-MF	Modular Furniture	Facilitac, Inc.
55	LRT-06-065-TCS	Telecom Carrier Services	Time Warner Telecom
56	LRT-06-057-WLI	WAN/LAN and IPT Voice Sys Equipment	Calence, Inc.
57	LRT-04-034-SPC	Strategic Planning Consulting Services	Davis Consulting
58	LRT-05-045-DCS	Document Control Services	LKG-CMC, Inc
59	LRT-05-037-ACS	Audit Consulting Services	Clifton Gunderson LLP
60	LRT-05-038-RMS	Risk Management Services	Ashton Tiffany, LLC
61	LRT-06-069-SSC	Safety & Security Certification Services	Booz Allen Hamilton, Inc.
62	LRT-06-067-TIS	Info Technology Office Network Support	World Wide Technology, Inc.
<b>6. OWNER FURNISHED MATERIALS</b>			
63	LRT-04-009-MP1	Rail MP1)	Progress Rail Corporation
64	LRT-04-010-MP2	Concrete Cross-ties (MP2)	CXT Inc
65	LRT-04-030-MP5	Ballasted Special Trackwork (MP5)	VAE Nortrak North America Inc
66	LRT-04-032-MP8	Grider Rail MP8)	VAE Nortrak North America Inc
67	LRT-04-033-MP9	Grider Rail Special Trackwork (MP9)	VAE Nortrak North America Inc
68	LRT-04-015-MP3	Traffic Signal Hardware (MP3)	Varbus
69	LRT-06-072-SE	Shop Equipment for Maintenance Facility	Wisota Supply Company, Inc



## **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 \$32,914,973 of the available \$84,536,664 planned contingency. Including Project Reserve, this leaves \$62,228,761 of contingency funds available to the project.

The project is 44.6 percent complete. The planned percent is being evaluated to reflect the recently approved revised baseline schedule. Construction is 33.4 percent complete.

Since the last reporting period, the contingency decreased by \$1,763,133 (\$2.83 percent of the remaining contingency).

### **Program Management and Administration**

Forecast is within budget.

### **Program Management Consultant**

Staffing plan for fiscal years 2008 and 2009 is being developed.

### **City Administration**

Forecasts are per agreements with the cities.

### **Right-of-Way Acquisition**

Forecast appears adequate but is being evaluated.

### **PE/FEIS Engineering**

Activity is complete.

### **Engineering**

The final design budget and its associated contingency total \$82,800,000. To date, \$81,700,000 has been incurred. Work remaining consists of change orders, completion of Park-and-Rides design and vehicle engineering support.

The Design Services During Construction (DSDC) budget totals \$14,900,000 and \$12,100,000 of this has been expended. METRO has \$1,600,000 of contingency available to fund further work. The amounts remaining for DSDC are anticipated to require additional funding to be adequate for the remaining scope of work, but are anticipated to be within the overall project budget.



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

Forecasts are within budget. The work is 80 percent complete.

### **Light Rail Vehicles**

Contingency appears to be sufficient to fund the work remaining.

### **Facilities**

Facilities work is 33.2 percent complete. Executed and pending change orders are expected to utilize \$16,600,000 of the \$33,100,000 available contingency. Additional expected change orders for required acceleration, additional work and expected requests for equitable adjustment are challenging to the available balance of contingency.

The forecast for prior right utilities continues to be a concern and is being evaluated. The basis of the budget was developed prior to approval of the Full Funding Grant Agreement. Since then there have been significant increases in material costs and changes in market conditions.

### **Systems**

Systems work is 20.1 percent complete. Remaining contingency is at 90 percent of the contingency budget and will likely be required to accelerate the systems work.

### **Construction Administration Services**

The forecast appears adequate though there is some uncertainty as to the cost of archaeological/environmental remediation work that will be assigned to the consultant.

Negotiation of the Construction Administration Consultant Contract (to extend services in line with the December 2008 schedule) will determine the final cost of these services.

### **Testing & Startup**

Forecast continues to show and under run to the budget.

### **Art Program**

Forecast is sufficient to complete the work.

### **Unallocated Design Contingency**

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

### **Project Reserve**

Remaining Project Reserve is forecast at \$7,300,000.



### **Financing Costs**

Forecast indicates an under run to the budget and is being evaluated on a periodic basis.

### **Concurrent Non Project Activities Project**

The budget for Concurrent Non Project Activities is \$94,996,637, based on the January 2006 METRO Board approved amount.

During the reporting period 1 CNPA was fully executed for the City of Tempe Center Parkway Station in the amount of \$10,000. There were 3 change orders processed for City of Phoenix Water Services Department. Work continues on finalizing changes to the fiber optic work occurring throughout the alignment.

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

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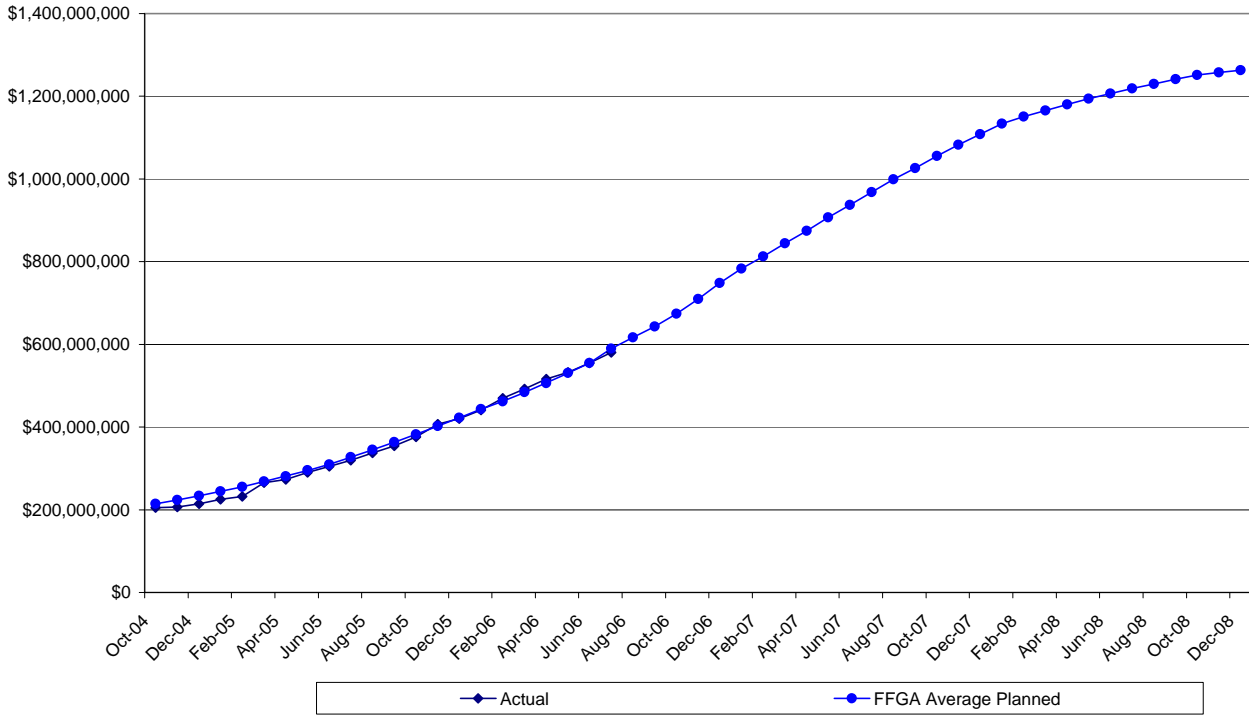
Element	Description	FFGA Attachment 3	Board Revised Budget	Current Actual \$ (To Date)	Forecast	Variance
50	LS1 19th Ave/Bethany - Cam eback/Cental	\$27,130,856	\$41,043,834	\$6,006,696	\$40,981,484	\$62,350
51	LS2 Cam eback/Cental-M cDowell Road	\$38,004,059	\$49,144,213	\$6,031,047	\$49,197,001	(\$52,788)
52	LS3 M cDowell Road - 28th Street	\$63,981,654	\$81,192,230	\$19,145,379	\$81,207,467	(\$15,237)
53	LS4 28th Street -N Approach to Town Lake	\$46,622,020	\$51,582,036	\$21,138,911	\$51,993,778	(\$411,742)
54	LS5 1st Street - Sycamore	\$49,680,435	\$69,624,970	\$20,929,524	\$69,655,344	(\$30,374)
55	Station Finishes	\$38,701,950	\$52,985,000	\$2,515,176	\$53,035,000	(\$50,000)
56	Park and Ride Facilities	\$15,104,339	\$15,104,339	\$0	\$20,907,699	(\$5,803,360)
57	M iscellaneous Construction	\$7,505,200	\$4,501,200	\$0	\$4,501,200	\$0
5K	Archaeological Investigations/Hazardous Material Removal	\$0	\$1,004,029	\$16,933	\$1,004,029	\$0
58	M SF Construction/Equipment Installation	\$57,637,721	\$63,817,359	\$50,815,725	\$63,925,467	(\$108,108)
5G	M SF Underfloor Wheel Profiling System	\$0	\$980,107	\$98,011	\$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	\$21,881,574	\$20,477,449	\$21,905,591	(\$24,017)
5B	Prior Rights Utility Relocations	\$22,938,000	\$21,388,292	\$9,108,487	\$28,165,367	(\$6,777,075)
81	Contingency	\$37,491,841	\$17,024,839	\$0	\$16,229,236	\$795,603
	Facilities	\$422,341,688	\$494,098,254	\$159,107,570	\$506,513,002	(\$12,414,748)
4A	Rail Procurement	\$1,306,200	\$1,271,080	\$1,251,101	\$1,271,080	\$0
4B	Concrete Crosstie Procurement	\$900,000	\$751,492	\$710,953	\$751,492	\$0
4C	Traffic Signal Hardware	\$8,060,100	\$8,060,100	\$6,819,997	\$8,060,100	\$0
4D	Balasted Special Trackwork Procurement	\$2,532,414	\$2,291,498	\$2,253,875	\$2,291,498	\$0
4E	Crossing Panel Procurement	\$380,100	\$360,096	\$0	\$0	\$360,096
4F	Guided Rail Procurement	\$15,079,742	\$14,526,798	\$14,293,479	\$14,526,798	\$0
4G	Guided Rail Special Trackwork Procurement	\$0	\$5,712,656	\$565,052	\$5,712,656	\$0
81	Contingency	\$1,412,863	\$865,480	\$0	\$846,480	\$19,000
	Owner Furnished Materials/Equipment	\$29,671,419	\$33,839,200	\$25,894,457	\$33,460,104	\$379,096
5D	Fare Collection Machines	\$10,755,800	\$7,100,012	\$0	\$7,101,612	(\$1,600)
5E	Traction Power Substations/Overhead Catenary System	\$62,141,100	\$56,871,345	\$14,027,264	\$56,871,345	\$0
5F	Communications/Signals	\$38,220,002	\$37,890,482	\$7,587,072	\$37,940,482	(\$50,000)
81	Contingency	\$8,674,000	\$5,999,473	\$0	\$5,947,873	\$51,600
	Systems	\$119,790,902	\$107,861,312	\$21,614,336	\$107,861,312	\$0
<b>Sub Total, Construction</b>		<b>\$571,804,009</b>	<b>\$635,798,766</b>	<b>\$206,616,363</b>	<b>\$647,834,418</b>	<b>(\$12,035,652)</b>
4K	Vehicle Contact	\$115,501,823	\$117,625,456	\$15,990,522	\$117,625,456	\$0
4N	LRT Vehicle Contact Contingency	\$5,775,001	\$2,512,813	\$0	\$2,512,813	\$0
	LRT Vehicles	\$121,276,824	\$120,138,269	\$15,990,522	\$120,138,269	\$0
22	ROW Acquisition	\$116,214,150	\$116,214,150	\$125,494,520	\$134,000,000	(\$17,785,850)
23	ROW Contingency	\$20,081,000	\$19,573,264	\$0	\$0	\$19,573,264
20	ROW	\$136,295,150	\$135,787,414	\$125,494,520	\$134,000,000	\$1,787,414

Valley Metro Rail Program Control  
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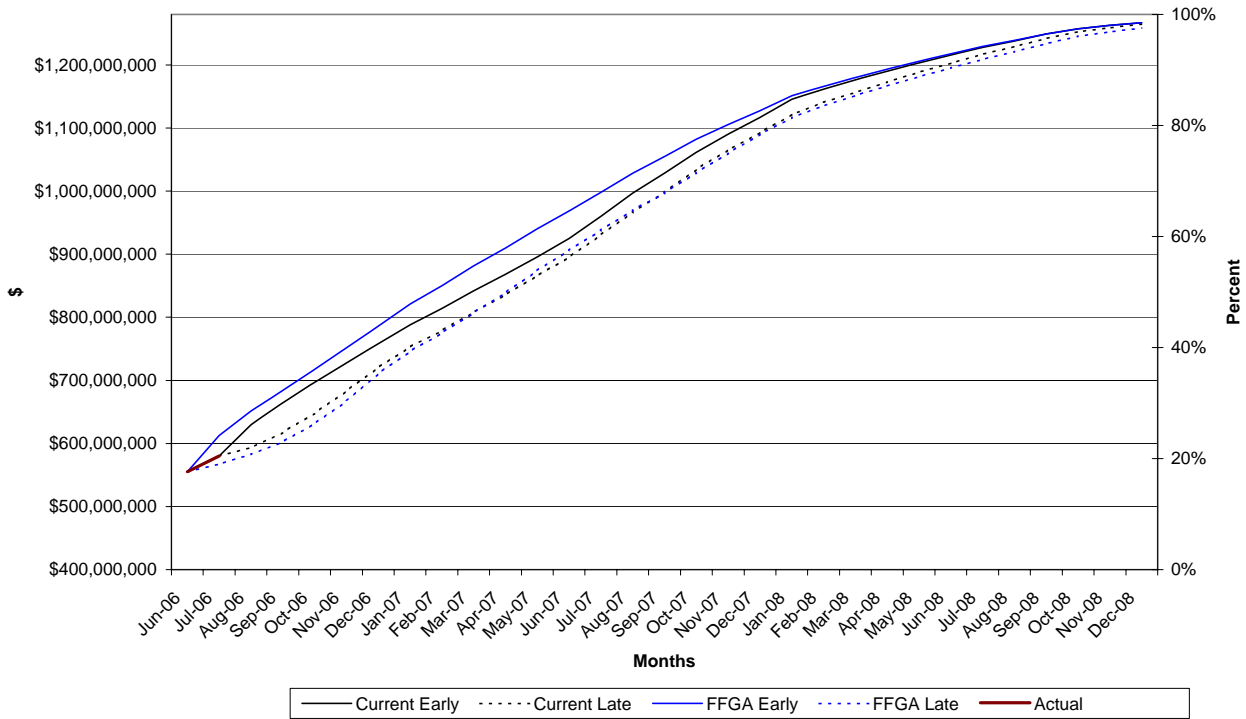
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Element	Description	FFGA Attachment 3	Board Revised Budget	Current Actual \$ (To Date)	Forecast	Variance
30	PE/FES Engineering	\$25,054,938	\$25,054,938	\$25,054,938	\$25,054,938	\$0
31	Engineering	\$76,780,935	\$75,358,171	\$75,158,237	\$75,849,877	(\$491,706)
4L	Vehicle Engineering	\$5,432,358	\$4,955,358	\$4,646,483	\$4,955,358	\$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	\$14,877,262	\$12,097,254	\$14,877,262	\$0
33	Engineering Contingency	\$0	\$1,171,698	\$0	\$621,077	\$550,621
34	DSDC Contingency	\$0	\$1,600,000	\$0	\$1,600,000	\$0
	Engineering	\$97,390,089	\$99,283,652	\$93,288,146	\$99,289,746	(\$6,094)
						\$0
60	CAC Contract	\$37,759,127	\$38,368,729	\$23,605,023	\$59,401,079	(\$21,032,350)
61	CAC Contingency	\$15,244,622	\$1,065,984	\$0	\$1,065,984	\$0
	Construction Administration Services	\$53,003,749	\$39,434,713	\$23,605,023	\$60,467,063	(\$21,032,350)
10	PE Administration Management Costs	\$4,363,526	\$4,363,526	\$4,363,526	\$4,363,526	\$0
11	Administration Management - VMR	\$43,915,047	\$44,228,316	\$22,827,214	\$44,179,976	\$48,340
62	Construction Administration Services - VMR	\$1,697,232	\$3,087,589	\$1,957,612	\$3,120,457	(\$32,868)
67	CAB Program	\$0	\$2,500,000	\$672,365	\$2,500,000	\$0
21	Administration ROW Costs	\$696,712	\$696,712	\$472,099	\$696,712	\$0
76	Administration Art Program Costs	\$414,632	\$414,632	\$0	\$414,632	\$0
16	Administration - ADOT	\$420,000	\$930,000	\$340,365	\$930,000	\$0
17	Agency Insurance Cost	\$7,000,000	\$7,000,000	\$3,550,807	\$7,000,000	\$0
18	Administration Contingency	\$0	\$11,910,551	\$0	\$6,824,969	\$5,085,582
	Program Management	\$58,507,149	\$75,131,326	\$34,183,988	\$70,030,272	\$5,101,054
10	PE Administration Management Costs	\$12,832,472	\$12,832,472	\$12,832,472	\$12,832,472	\$0
21	Administration ROW Costs	\$1,016,571	\$1,016,571	\$761,635	\$1,016,571	\$0
76	Administration Art Program Costs	\$549,061	\$549,061	\$233,190	\$549,061	\$0
12	Administration - PMC	\$32,736,326	\$32,736,326	\$21,065,984	\$32,736,326	\$0
4M	Administration 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	\$2,366,946	\$5,081,527	\$0
	Program Management Consultant	\$53,053,279	\$53,553,279	\$37,822,135	\$53,553,279	\$0
10	PE Administration Management Costs	\$3,158,439	\$3,158,439	\$3,158,439	\$3,158,439	\$0
13	Administration - COP	\$2,986,000	\$5,448,000	\$4,848,950	\$5,448,000	\$0
64	Construction Administration Services - COP	\$8,347,000	\$5,885,000	\$2,454,030	\$5,885,000	\$0
14	Administration - COT	\$6,797,000	\$6,797,000	\$5,146,515	\$6,797,000	\$0
15	Administration - COM	\$897,000	\$897,000	\$263,164	\$897,000	\$0
	City Administration	\$22,185,439	\$22,185,439	\$15,871,098	\$22,185,439	\$0
75	Public Art Contracts	\$5,284,133	\$6,030,417	\$2,206,639	\$6,030,417	\$0
77	Art Program Contingency	\$999,000	\$252,716	\$0	\$252,716	\$0
	Public Art	\$6,283,133	\$6,283,133	\$2,206,639	\$6,283,133	\$0
70	Start-Up and Testing	\$31,000,000	\$30,000,000	\$21,135	\$26,000,000	\$4,000,000
80	Unallocated Design Contingency	\$7,575,241	\$0	\$0	\$0	\$0
85	Project Reserve	\$69,829,000	\$10,607,071	\$0	\$7,288,789	\$3,318,282
<b>SUBTOTAL</b>		<b>\$1,253,258,000</b>	<b>\$1,253,258,000</b>	<b>\$580,154,507</b>	<b>\$1,272,125,346</b>	<b>(\$18,867,346)</b>
90	Financing Costs	\$158,867,346	\$158,867,346	\$5,717,401	\$140,000,000	\$18,867,346
<b>TOTAL CP/EV PROJECT</b>		<b>\$1,412,125,346</b>	<b>\$1,412,125,346</b>	<b>\$585,871,908</b>	<b>\$1,412,125,346</b>	<b>\$0</b>

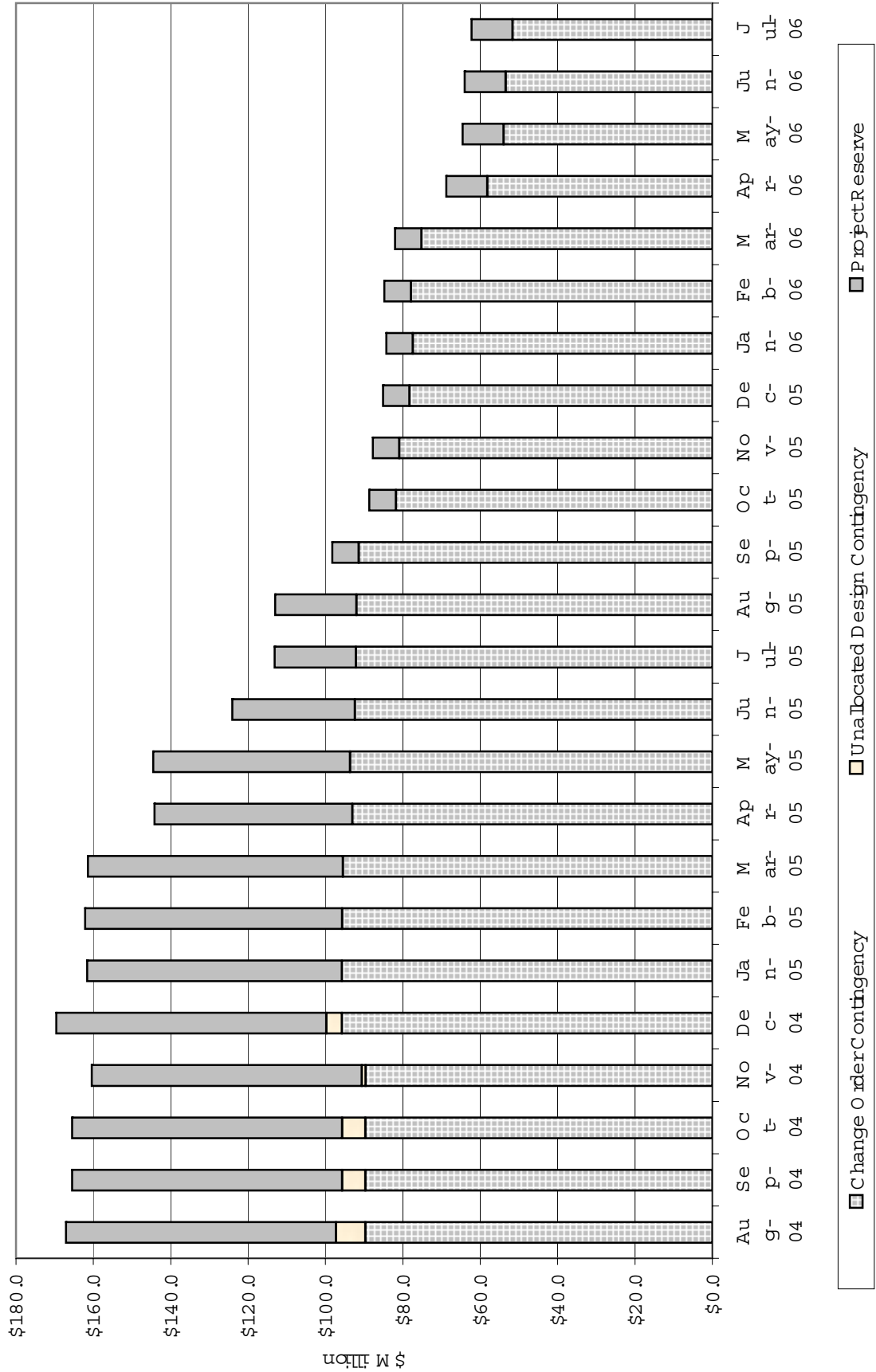
### Plan versus Actual Costs



### Current versus Baseline



CP/EV LRT Contingency Drawdown



Valley Metro Rail Program Control  
 CP/EV LRT Project  
 Project Budget Status  
 CNPA Project

2006\_07

Element	Description	Jan 2006		Revised Budget/Estimate	Current Actual \$ (To Date)	Forecast	Variance
		Approved Total					
A1	Bus Bays (LS2)	\$806,300	\$806,300	\$806,300	\$769,555	\$965,312	(\$159,012)
A2	Phoenix Art Museum Left Turn Signal	\$108,770	\$108,770	\$108,770	\$14,217	\$117,327	(\$9,557)
A5	19th/Montebello Transit Center (SF)	\$6,344,743	\$6,344,743	\$6,344,743	\$2,273,413	\$5,562,567	\$782,176
A6	117 Central/Camelback Transit Center (SF)	\$6,968,744	\$6,968,744	\$6,968,744	\$1,792,560	\$6,628,579	\$340,165
A7	44th Street/Washington Transit Center Real Estate	\$4,649,580	\$4,649,580	\$4,649,580	\$2,679,870	\$4,900,509	(\$250,929)
B1	Washington Street Bike Lane (LS4)	\$881,613	\$881,613	\$906,604	\$541,499	\$930,257	(\$23,653)
F4	Civic Plaza Track Support System	\$2,208,231	\$2,208,231	\$2,208,231	\$155,172	\$2,208,231	(\$0)
F5	Additional Water Services to the Pueblo Grande Museum - LS4	\$89,285	\$89,285	\$89,285	\$62,262	\$89,285	(\$0)
F6	Central/Camelback Bus Bays Relocation	\$7,500	\$7,500	\$7,500	\$0	\$200,565	(\$193,065)
F7	COP Landscape Irrigation Restoration Central Ave	\$75,000	\$75,000	\$75,000	\$0	\$108,702	(\$33,702)
H1	Fiber Optic LS1	\$0	\$0	\$0	\$0	\$0	\$0
H2	Fiber Optic LS2	\$0	\$0	\$0	\$0	\$0	\$0
H3	Fiber Optic Backbone LS-3 (Phoenix portion)	\$287,174	\$287,174	\$348,921	\$7,364	\$348,921	\$0
H4	Fiber Optic Backbone LS-4 (Phoenix portion)	\$269,395	\$269,395	\$269,395	\$18,008	\$269,395	\$0
J6	Washington/Jefferson 16th to 26th Street, Property Access	\$3,932,769	\$3,932,769	\$4,032,015	\$1,081,982	\$4,129,599	(\$97,584)
<b>Sub Total Public Transit Department</b>		<b>\$26,546,604</b>	<b>\$26,815,088</b>	<b>\$26,815,088</b>	<b>\$9,395,902</b>	<b>\$26,459,249</b>	<b>\$355,839</b>
A3	6th Lane - Camelback (LS1)	\$9,820,210	\$9,820,210	\$9,820,210	\$7,224,924	\$9,820,210	\$0
D1	Additional Street/Pedestrian Lighting (LS3)	\$492,574	\$492,574	\$509,602	\$220,696	\$509,602	\$0
E3	Seal Coat versus Rubber Overlay (LS 1)	\$264,342	\$264,342	\$264,342	\$17,104	\$264,342	\$0
E4	Seal Coat versus Rubber Overlay (LS 3)	\$1,482,845	\$1,479,845	\$1,479,845	\$90,509	\$1,482,845	(\$3,000)
E5	Seal Coat versus Rubber Overlay (LS 4)	\$430,896	\$430,896	\$430,896	\$10,832	\$430,896	\$0
K3	Red Light Enforcement	\$0	\$0	\$0	\$0	\$93,485	(\$93,485)
<b>Sub Total Streets Department</b>		<b>\$12,490,867</b>	<b>\$12,504,895</b>	<b>\$12,504,895</b>	<b>\$7,564,065</b>	<b>\$12,601,380</b>	<b>(\$96,485)</b>
A7	44th Street/Washington Transit Center (SF)	\$2,917,270	\$2,917,270	\$2,821,529	\$238,759	\$2,842,957	(\$21,428)
A7	Washington Street Transit Center Changes	\$906,881	\$906,881	\$0	\$0	\$0	\$0
D2	44th Street Station People Mover Foundation (LS4)	\$919,161	\$919,161	\$806,000	\$254,200	\$806,000	\$0
D6	People Mover - APS Duct Bank @ 40th Place	\$216,000	\$216,000	\$216,000	\$326,527	\$216,000	\$0
E9	10" Water Line at 42nd/Washington LS 4	\$67,735	\$67,735	\$61,269	\$17,540	\$61,269	\$0
F3	Archaeological/Hazardous Material Testing (CAC)	\$60,000	\$60,000	\$60,000	\$36,147	\$60,000	\$0
<b>Sub Total Aviation Department</b>		<b>\$5,087,047</b>	<b>\$3,964,798</b>	<b>\$3,964,798</b>	<b>\$873,173</b>	<b>\$3,986,226</b>	<b>(\$21,428)</b>
B3	LS 1 Water/Sanitary Sewer	\$9,900,351	\$9,900,351	\$8,793,510	\$1,093,365	\$8,793,300	\$210
B4	LS 2 Water/Sanitary Sewer	\$6,255,348	\$6,255,348	\$5,445,703	\$686,273	\$5,502,189	(\$56,486)
B5	LS 3 Water/Sanitary Sewer	\$15,367,099	\$15,367,099	\$14,083,215	\$6,449,701	\$14,510,038	(\$426,823)
B6	LS 4 Water/Sanitary Sewer	\$4,935,839	\$4,935,839	\$5,293,954	\$3,871,994	\$5,293,954	\$0
B7	Water and Sanitary Sewer Lines - 48th St. Bridge Replacement Contract	\$453,006	\$453,006	\$155,767	\$155,767	\$155,767	\$0
J1	Catholic P protection for Waterlines LS1	\$1,187,352	\$1,187,352	\$1,099,400	\$63,750	\$1,099,400	\$0
J2	Catholic P protection for Waterlines LS2	\$1,083,586	\$1,083,586	\$979,408	\$103,502	\$979,408	\$0
J3	Catholic P protection for Waterlines LS3	\$29,192	\$29,192	\$0	\$0	\$0	\$0
J5	Catholic P protection for Waterlines LS4	\$432,039	\$432,039	\$435,620	\$85,620	\$435,620	\$0
<b>Sub Total Water Services Department</b>		<b>\$39,643,811</b>	<b>\$36,286,577</b>	<b>\$36,286,577</b>	<b>\$12,509,972</b>	<b>\$35,790,268</b>	<b>\$496,309</b>
<b>Total - Phoenix</b>		<b>\$83,768,329</b>	<b>\$79,571,358</b>	<b>\$79,571,358</b>	<b>\$30,343,112</b>	<b>\$78,837,123</b>	<b>\$734,235</b>

Valley Metro Rail Program Control  
 CP/EV LRT Project  
 Project Budget Status  
 CNPA Project

Element	Description	Jan 2006		Revised Budget/Estimate	Current Actual \$ (To Date)	Forecast	Variance
		Approved Total					
A8	Transit Center	\$735,400	\$846,506	\$658,992	\$707,234	\$139,272	
B8	Terrace / Apache Waterline Coordination (Design Only)	\$38,105	\$38,105	\$35,577	\$54,640	(\$16,535)	
C1	Additional Communications Conduits	\$24,000	\$32,499	\$23,421	\$32,499	\$0	
C2	COT ASU Pedestrian Signal	\$0	\$123,637	\$31,048	\$123,637	\$0	
C7	Parking Facility 5th/Farmer	\$116,990	\$116,990	\$110,207	\$110,207	\$6,783	
D4	COT Additional Street Lighting (LS5)	\$345,014	\$345,014	\$176,849	\$345,014	\$0	
E5	COT Rubberized AC Overlay LS4	\$671,372	\$612,946	\$0	\$958,807	(\$345,861)	
E6	Rubberized Asphalt LS5	\$624,873	\$624,874	\$0	\$624,874	\$0	
F2	McClintock / Apache Storm Drain	\$200,129	\$567,277	\$9,251	\$755,753	(\$188,476)	
H4	Fiber Optic Backbone LS-4 (Tempe portion)	\$185,372	\$185,371	\$15,000	\$200,371	(\$15,000)	
H5	Fiber Optic Backbone LS-5 (Tempe portion)	\$237,901	\$237,901	\$20,520	\$237,901	\$0	
J4	Catholic Protection of Waterline LS4 CO#15	\$158,637	\$158,638	\$111,285	\$158,638	\$0	
J9	University Drive Station Bus Interface	\$509,186	\$509,186	\$0	\$509,186	\$0	
K1	Veteran's Way- 5th/College TC	\$0	\$7,645	\$0	\$7,645	\$0	
K2	Bus Shelter Electrification	\$0	\$10,491	\$0	\$11,076	(\$585)	
K4	Washington/Center Parkway Station	\$0	\$339,524	\$63,244	\$1,435,524	(\$1,096,000)	
XX	Tempe Miscellaneous Force Account Work LS5	\$0	\$20,000	\$10,708	\$20,000	\$0	
<b>Sub Total Tempe</b>		<b>\$3,846,979</b>	<b>\$4,776,604</b>	<b>\$1,266,102</b>	<b>\$6,293,006</b>	<b>(\$1,516,402)</b>	
A9	Main Sycamore Transit Center	\$5,531,609	\$5,531,611	\$1,078,429	\$5,531,587	\$24	
H3	Fiber Optic Backbone LS-3 (Mesa portion)	\$271,270	\$271,270	\$1,359	\$271,270	\$0	
H4	Fiber Optic Backbone LS-4 (Mesa portion)	\$229,216	\$229,216	\$0	\$229,216	\$0	
H5	Fiber Optic Backbone LS-5 (Mesa portion)	\$297,345	\$297,345	\$0	\$297,345	\$0	
XX	Mesa Miscellaneous Force Account Work LS5	\$0	\$5,000	\$2,738	\$5,000	\$0	
<b>Sub Total Mesa</b>		<b>\$6,329,442</b>	<b>\$6,334,442</b>	<b>\$1,082,526</b>	<b>\$6,334,418</b>	<b>\$24</b>	
E1	(APS) Duct Bank at 48th St. Utility Bridge, Archaeological Support	\$174,649	\$60,377	\$57,870	\$62,342	(\$1,965)	
H1	Fiber Optic Backbone LS-1 (ASU portion)	\$0	\$18,550	\$0	\$18,550	\$0	
H2	Fiber Optic Backbone LS-2 (ASU portion)	\$0	\$60,560	\$0	\$60,560	\$0	
H3	Fiber Optic Backbone LS-3 (ASU portion)	\$228,371	\$64,027	\$301	\$64,027	\$0	
H4	Fiber Optic Backbone LS-4 (ASU portion)	\$183,411	\$10,871	\$0	\$10,871	\$0	
H5	Fiber Optic Backbone LS-5 (ASU portion)	\$465,458	\$291,855	\$89,637	\$291,855	\$0	
H6	Fiber Optic Comm/Signals (ASU portion)	\$0	\$335,569	\$0	\$335,569	\$0	
<b>Sub Total Other</b>		<b>\$1,051,888</b>	<b>\$841,809</b>	<b>\$147,808</b>	<b>\$843,774</b>	<b>(\$1,965)</b>	
<b>Grand Total CNPA</b>		<b>\$94,996,638</b>	<b>\$91,524,213</b>	<b>\$32,839,548</b>	<b>\$92,308,321</b>	<b>(\$784,108)</b>	



### 3. Schedule Overview

The current Status of the Master Schedule is based on a data date of August 1, 2006. The current forecast continues to be an on-time Program completion date of Saturday, December 27, 2008.

The Line Section Contracts continue to have right-of-way, cost to cure and private utility relocation issues that have impacted access dates and interim Milestones. METRO management continues to aggressively manage these issues, resulting in minimum impact to the overall Program Schedule/or contract milestones. To date, the Program has been successful in mitigating delays with a minimum of acceleration to Civil Contracts.

During the last month, follow-up meetings continued with the Line Section Contracts, TES, S&C and Station Finishes. These reviews are now focusing on the development of the contractors revised detail schedules, supporting the new Master Schedule.

During the month of July, 2006, there were no major contracting activities

#### Revised Baseline Preliminary Schedule Highlights:

##### **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
MSF 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 Washington/Jefferson/25<sup>th</sup> St to 5<sup>th</sup> St/College

(All of LS 4, parts of LS 3 and LS 5):                      March, 2008

Start Integrated Testing Area 2 Balance of LS 3 and Balance of LS 5

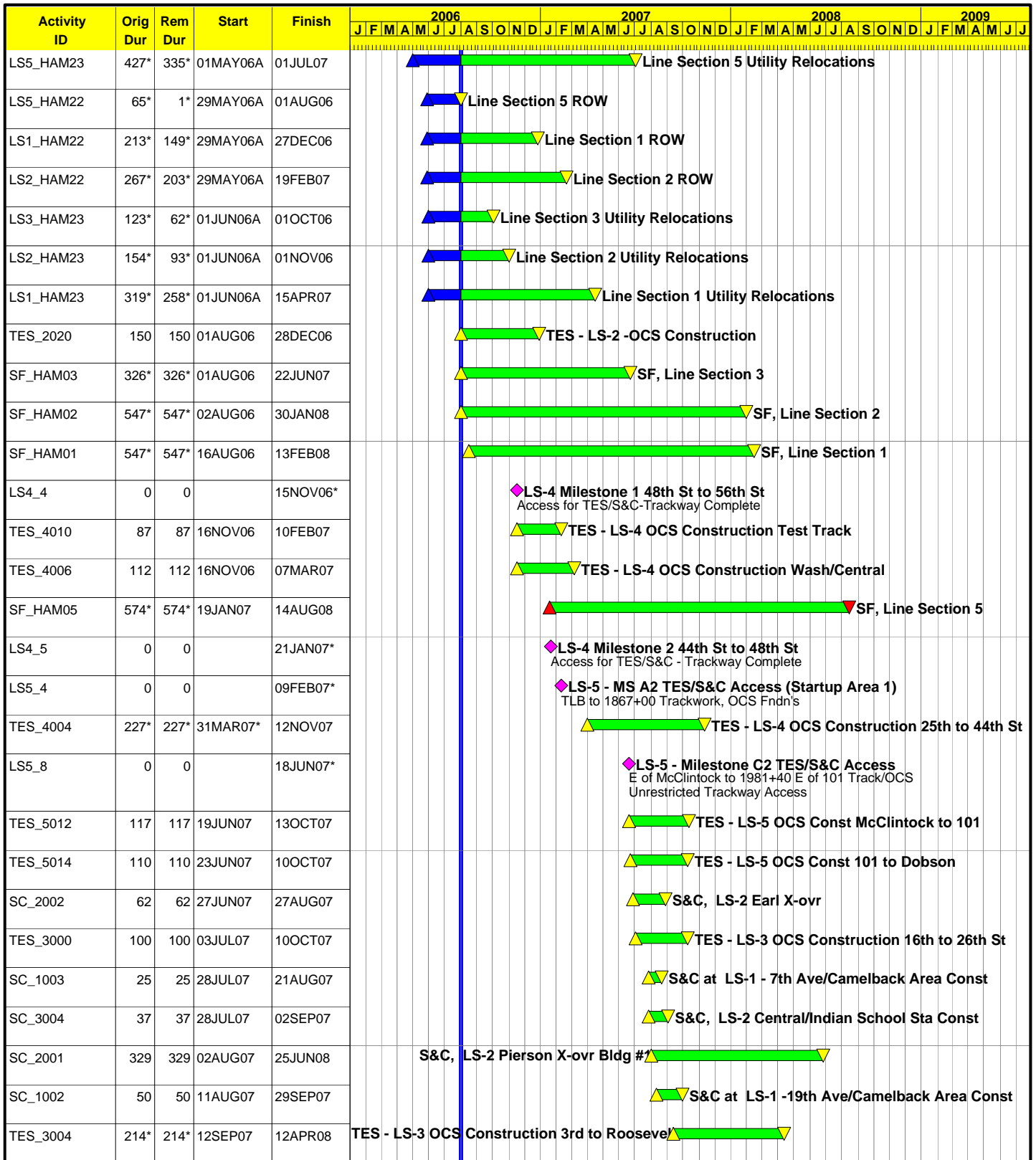
June, 2008

Start Integrated Testing Area 3 All of LS 2 and LS 1

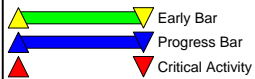
July, 2008

**Critical Path(s):**

The Program critical Paths run through Right-of-Way and Private 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 01AUG06  
 Run Date 07AUG06 13:03



6007  
 Sheet 1 of 2  
**Valley Metro Rail**  
**Central Phoenix/East Valley LRT**  
**Revised Master**

**Critical Path**





Procurement Bid Status Report as of 7/27/06

Title	Issue Date	Pre-Bid Conf	Bid Opening	Board Award	NTP (Anticipated)
<b>PART I - CP/ENV LRT PROJECTS</b>					
Park and Rides <i>(Tentative)</i> Note: significant delays in the IFB due to the design hold for the Central & Cambridge site	04/06/07	04/24/07	06/06/07	07/18/07	08/06/07
LRT Vehicle Maintenance - RFP	04/20/06	05/03/07	06/20/06	09/20/06	10/23/06
LRT Systems and Facilities Maintenance - RFP	TBD	TBD	TBD	TBD	TBD
LRT Transportation Services - RFP	04/27/06	05/16/06	06/27/06	09/20/06	10/23/06
Legal Services	05/19/06	NA	07/12/06	TBD	TBD
Legal Services (Small Claims)	05/19/06	NA	TBD	TBD	TBD
Maintenance Management Information System	07/10/06	07/24/06	08/23/06	12/20/06	01/15/07
IT Network Equipment	06/07/06	06/28/06	08/18/06	10/18/06	11/01/06
On Call Printing Services	08/11/06	NA	09/18/06	10/18/06	11/01/06
Modular Furniture for MSF - IFB	TBD	TBD	TBD	TBD	TBD
MSF Spray Paint Booth Manlifts - IFB	TBD	TBD	TBD	TBD	TBD
Power Consulting Services	TBD	TBD	TBD	TBD	TBD
Telecommunications Services at MSF	07/26/06	NA	08/28/06	NA	09/18/06
<b>PART II - LONG RANGE DEVELOPMENT PROJECTS</b>					
Alternatives Analysis and Draft Environment Impact Statements for future extension work in cities of Tempe and Mesa <i>(Tentative)</i>	8/01/06	08/14/06	09/06/06	12/20/06	01/15/07
Northwest LRT Extension Engineering 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

#### Quality Manuals Reviewed:

- Station Finishes Test Plan was resubmitted reviewed and was returned approved. QC Plan re-submittal is due in August.
- Line Section 1 QC Plan was resubmitted for review, with minor comments. Resubmittal due in August.
- Line Section 4 revised QC Plan was reviewed and returned with minor comments.
- MSF Inspection Plan was resubmitted and is approved.

#### First Article Inspections:

- First article inspection was performed at VAE Nortrak, Seattle, Washington for inspection of the 50 meter turnouts. VAE Nortrak identified a flaw on one of the tongues and an NCR was generated by VAE Nortrak. Full turnout was shipped with NCR number spray painted on part and VAE Nortrak will replace with new tongue on-site.

#### LRV Inspections

FAI = First Article Inspection

PSI = Pre Shipment Inspection



IPI = In Process Inspection

**United States:**

- PSI of panels at Milwaukee Composites
- PSI of SSD Drives at Parker SSD
- PSI of Door system components at IFE America
- PSI of Windows at NASG
- PSI of HVAC units at Air Circle

**Japan:**

- Continuing review of exterior side panel installation.
- Ongoing daily In process inspections (IPI)

**Quality Assurance Audits/Surveillances:**

- METRO QA completed an audit of the Mass Electric Company (MEC) quality assurance/quality control system, as reported last month. The audit resulted in a total of thirty-eight (38) Audit Finding Reports that, when taken in total, were symptomatic of a lack of MEC management commitment to the quality of the project. A partnering session was subsequently held with MEC Executive Management, MEC Construction Staff and the Executive Representative of SSW-JV during which the results of the Audit Finding Reports, together with a significant CAC Quality Action Request were reviewed. During this session, MEC and SSW-JV management acknowledged that there were fundamental breakdowns within their quality program. The correction and control of these problems were escalated to the level of the METRO QA Manager and the Kiewit Corporate QA Manager. A corrective action planning meeting was held and fundamental corrective actions were agreed upon. Progress has gone well since that time and a METRO Quality Engineer has worked closely with the MEC QA Manager to close many of the Audit Finding Reports. Additional inspection staff will be hired by MEC and the MEC QA Manager has received full endorsement and support by MEC Executive Management. This is key to the success of the MEC Quality Management System. As of this writing, twenty-five (25) of the thirty-eight (38) issued Audit Finding Reports have been corrected and closed, which is remarkable progress toward improvement. Details are provided on the attached Nonconformance Report Summary.
- The CAC conducted an audit of the LS2 Contractor. The scope of the audit was receipt inspection, material identification and traceability, record documents, and material test reports. Audit findings were issued for not maintaining receiving inspection logs, not maintaining as-built drawings per Agency Spec Section 01789, and not issuing copies of material test reports to the RE. Findings will be monitored until closure.



- The CAC conducted an audit of the LS3 Resident Engineers' activities for compliance with the quality aspects of the CAC Resident Engineers Manual. The scope of the audit was contract drawings, daily diary and weekly report, Contractor submittals, file system, records, NCR process, material sampling and testing, and oversight inspection. Audit findings were issued, three of which were significant, namely: not posting RFI responses in a timely manner on the working set of Contract Drawings and frequently checking that the Contractor as-built drawings are being maintained current; not issuing NCRs for the material nonconformances found by the CAC independent test laboratory (ATL); and having a large backlog of un-prepared and un-issued Inspector Daily Reports. Findings will be monitored until closure.
- GEC Audit No. 06-002 was completed in June. Sixteen Change Notice packages representing all Line Sections (LS1-LS5), MSF, TLB, S&C, and TES Projects were reviewed for compliance with the technical checking requirements of the GEC Project Quality Management Plan. The results were reported in GEC Audit Report No. 06-002, dated June 23, 2006. One QAR was issued. Findings will be monitored until closure.

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

- Quality Assurance activities remain within budget and on schedule.

### **Issues and Solutions**

- Nonconformances on the OCS Poles have been technically reviewed by the GEC and are pending closure by the CAC Resident Engineer. Closure of these NCRs should be expedited.
- CAC Quality Assurance visited Structural Steel Products to perform surveillance on OCS poles fabricated after mitigation plan was approved. Results were satisfactory.
- Two Quality Action Requests (QARs) were issued to Mass Electric on the Traction Electrification System Contract for lack of adequate inspection personnel; lack of inspection and surveillance reports, lack of inspection and failure to implement an internal and external audit program. Response was received and rejected and new response is due from Mass Electric by August 15th. As indicated above, Mass Electric has been resolving outstanding issues.
- Two flawed girder rails were discovered at the LS5 welding site. VA Nortrak visited the project and has issued a preliminary report identifying one rolling that has exhibited lamination. All but two pieces have been identified. VA Nortrak is in process of scheduling visit to perform corrective action of the defective rail. At completion, VAE Nortrak will issue final report and address future corrective action if two pieces are not identified.



## 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

- Construction in all five Line Sections continues to progress and Public Involvement Staff continues to meet and respond to various stakeholders addressing their concerns with construction.

### BUSINESS ASSISTANCE

- Order and delivery of Courtesy Signage Program continues in all Line Sections. Through July, 291 signs and 224 banners (515 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**

<b>Line Section</b>	<b>Signs</b>	<b>Banners</b>	<b>Total</b>
Line Section One (LS1)	15	39	54
Line Section Two (LS2)	56	51	107
Line Section Three (LS3)	149	54	203
Line Section Five (LS5) Tempe and Mesa	47	51	98
<b>Totals</b>	<b>291</b>	<b>224</b>	<b>515</b>



### **METRO Business Outreach Program**

The following is a break down of business outreach statistics as of July 1, 2006:

- METRO Max Program Participants – 173 businesses
- Construction Signage Program – 515 Total (291 signs and 224 banners)
- Management Technical Assistance (MTA) Program – 180 businesses
- ASU Business Honors Program – 82 businesses (59 Complete / 23 In-Progress)
- SELF Seminars / Micro Loan Assistance – 22 Businesses
- SBDC One-on-One Consultation - 13 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.

#### **LS-1**

- LS 1 conducted its Community Advisory Board (CAB) meeting on Tuesday, July 11 at Central High School. Public Involvement Manager, Howard Steere, reviewed the reformatted evaluation process. Members were informed an administrative recess, which will follow the contractor's presentation allowing members to complete the evaluation form and METRO staff to calculate the baseline score. Also, the evaluation form was updated to reflect scoring increments of five. During Kiewit's presentation, Chris Chaffee, shared photographs of the progress taking place in their rail welding yard and answered member's questions on the process and equipment used to weld rail. Kiewit received an overall rating of 100 percent, to begin their third quarterly rating period, for their effort for going "above and beyond" the contract specifications. The next LS 1 CAB meeting is scheduled for Tuesday, August 8 at and returns to its normal meeting location at Ameri Schools.

#### **LS-2**

- LS 2 held their monthly meeting Tuesday, July 18 at Brophy College Preparatory. Board Member TK Roberson asked for a status update on reports presented as "in progress" during the June meeting. Chairperson Keuth explained to the board that an outstanding issues matrix was being utilized in Line Section 3's CAB, and asked for this matrix to be used in LS 2. The outstanding issues matrix will be implemented in LS 2 starting at the August meeting. After reviewing several activity reports with complaints about noise from night time work, members expressed concern over why noisy work was taking place near residential units during the night and early morning hours. Board Member Howard Mays from Phoenix Towers stated night time noise is very irritating and the contractor would be receiving complaints from Phoenix Towers residents for the next



CAB meeting. Herzog explained the reasoning behind conducting night time work and would be sure to exercise sensitivity to residents in the future. Vice-Chair Ruth Ann Marston provided information on ASU Downtown Phoenix Campus' Grand Opening Event. The event will take place on Tuesday, August 15 starting at 9:00 a.m. with speeches from ASU President Michael Crow and Mayor Phil Gordon. The event will take place at 411 N. Central, the University Center Building. Herzog received and overall rating of 90 percent. The next LS 2 CAB meeting is schedule for Tuesday, August 15.

### **LS-3**

- LS 3 held its monthly meeting on Tuesday, July 11, 2006. Members of the public addressed the CAB on pedestrian safety issues and questions regarding the CAB evaluation system. Archer Western Contractors (AWC) delivered their contractor presentation, highlighting the progress and successes they have achieved during the last month, and described the future track-work timelines for each segment. AWC reviewed all upcoming intersection closures and restrictions, and showed the phases of construction schedule for work in all segments. AWC received and overall rating of 70 percent. Vice Chair Terry Madeksza reiterated additional tours are being planned. CAB members will be invited to the tours. Rick Simonetta will provide a "State of the System" presentation during next month's meeting. The next LS 3 CAB meeting is scheduled for Tuesday, August 8 in the METRO Board Room.

### **LS-4**

- LS 4 held their monthly CAB Meeting on July 12 at Papago Buttes Corporate Plaza. METRO's Steve Gottesman, Acting Manager, Architecture/Urban Design, provided an overview on light rail stations and discussed the approaches of how each station was designed. Mr. Gottesman reviewed station amenities and climate adaptation, how they will fit into each community, and showed renderings of station locations. Erik Yingling, Project Manager for SSWJV, presented information on completed track. Mr. Yingling also provide photos and aerial photos of work at Mill to Center, 56<sup>th</sup> Street, the Loop 202, 44<sup>th</sup> Street, 48<sup>th</sup> Street and the Grand Canal Bridge. Mr. Yingling also stated in his presentation details on upcoming track construction and indicated that a total of roughly 1 mile of track has been built on Line Section 4. Mr. Yingling wrapped up his presentation by providing information on scheduled concrete pours, guide way demos, sidewalk construction and also noted a lot of work is taking place to rebuild the north half of the 48<sup>th</sup> Street intersection. The LS 4 CAB gave a recommendation of 100 percent of the incentive available to SSWJC, for going "above and beyond" the contract specifications for the month. LS 4's next CAB meeting are scheduled for Wednesday, August 9 at Papago Buttes Corporate Center at 3 p.m.



**LS-5**

- LS 5 CAB conducted its meeting on Thursday, July 13. “State of the System” presentation by John Farry, Director of Community and Government Relations, as well as a briefing on the recent LS 5 CAB archeology tour that was provided by members that attended the tour. CAB members provided positive comments to SSWJV for their clean up efforts for the Fourth of July event. SSWJV indicated that work has increased in the areas of Third Street, Veterans Way, and the bridge over the 101 Freeway and Tempe Canal crossing. A recommendation of 100 percent of the incentive available to SSWJV was recommended by the LS 5 CAB. The next LS 5 CAB meeting is scheduled for Thursday, August 10 at the Holiday in on Apache Boulevard and Rural Rd. at 7:30 a.m.

**Cost and Schedule – Variance Analysis**

- Public Involvement activities remain on schedule.
- Scheduled CAB Disbursement remains the same as the previous month:

Total Available Incentive: **\$2,500,000.00** (10 Quarterly disbursements)

Total Miles of Street with LRT: 23.53 miles

Allocation per Mile: \$106,247.34

Total CAB Disbursement through June 2006 is **\$836,473**

<b>Line Section</b>	<b>Total Amount Available</b>	<b>Available for Award to Date</b>	<b>Total Award to Date</b>	<b>% Award to Date</b>
<b>LS-1</b>	\$241,181.00	\$ 48,236	\$ 48,236	100%
<b>LS-2</b>	\$317,680.00	\$ 95,304	\$ 92,127	97%
<b>LS-3</b>	\$865,916.00	\$346,366	\$277,093	80%
<b>LS-4</b>	\$567,361.00	\$283,680	\$266,659	94%
<b>LS-5</b>	\$507,862.00	\$152,358	\$152,358	100%

**Issues and Solutions**

- None



## **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 METRO, 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**

- DBE participation based on amounts originally awarded is 13.84 percent, participation including change order work is at 14.25 percent and DBE's have been paid 11.99 percent of construction dollars to date. Final proposed DBE participation levels will be established once the outstanding construction procurements of Park-N-Rides and Miscellaneous Construction have been completed.

### **Procurement Activities**

- There are no DBE-related procurement activities this period.

### **Outreach Activities**

- The DBE Outreach Advisory Committee met July 18, 2006
- A joint association/organization networking event was held July 27, 2006 representing METRO, the participating cities, and the associations and organizations represented on the DBE Outreach Advisory Committee. The event was held at Johnny's Uptown (Northeast corner of Central and Camelback) from 5:30 to 7:30 p.m. Approximately 95 people were in attendance.



- The METRO contractors/subcontractors Meet and Greet has been scheduled for October 5, 2006. This event will be held at the Wyndham from 4:00 to 6:00 p.m. and coincide with the United Latino Business Coalition Awards Banquet which will be held later than evening.
- The DBE Job Fair is scheduled for August 31, 2006 at the Emmett McLoughlin Community Training and Education Center at Henson Village (Northwest corner of 7<sup>th</sup> Avenue and Buckeye Road)

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

- DBE activities remain within budget and on schedule.

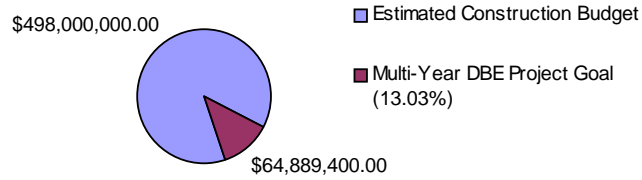
### **Issues and Solutions**

- There are no issues this reporting period.

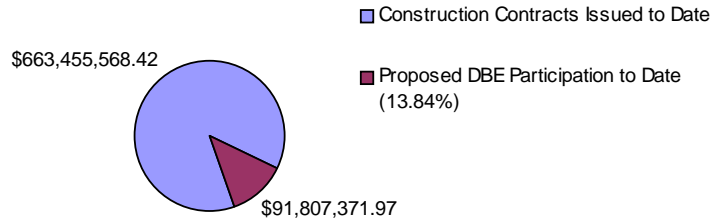


## DBE Program Overview

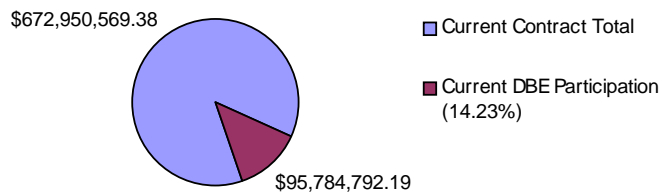
### DBE Program Overview



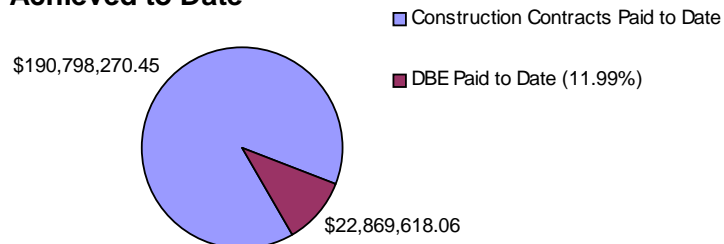
### Original Contract Amounts



### 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

- Construction accident. Concrete pump truck boom struck overhead power lines on Washington Street east of 56<sup>th</sup>. Four workers injured.
- Continued development of plan for barricading the test track.
- Reviewed railing design to separate bus stop island from METRO tracks at 7<sup>th</sup> and Washington Streets.
- Began working with BAH to develop safety and security certification checklists for construction.
- Provided input, along with operations and maintenance, on the type of vines that should be used on station cool screens.
- Reviewed the draft revision of the Safety and Security Certification Plan and distributed to METRO staff for review. Input was provided to BAH.
- Met with Ashton-Tiffany to kick-off development of a Disaster Recovery Plan.
- Conducted safety review of LRV Maintenance Contract Proposals and observed presentations.
- 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.
- Conducted the Fire/Life Safety and Security Committee, and Safety and Security Certification Review Committee Committees meetings.

### Cost and Schedule – Variance Analysis

- Safety and Security activities remain within budget 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.
- As of July 30, 2006 we have discovered three cremations / 17 inhumations in Pueblo Grande and 34 cremations / 43 inhumations La Plaza (Tempe). In the La Plaza site, construction has uncovered one pit house complex and approximately two hundred prehistoric features. In addition we have discovered a standing adobe wall, a privy, and trash associated with Barrio San Pablo. The density of discoveries in Pueblo Grande is lower than anticipated. The density of features and burials is consistent with previous reports.
- ACS has providing 22 field archaeologist and two supervisors for excavation in the vicinity of Veterans Way. ACS has maintained schedule commitments to allow target construction dated for paving of Veterans Way prior to the start of school and for the completion of the Promenade area. Field crews are being shifted to meet contractor's priorities.
- ACS provided oversight of archaeology data recovery being conducted by City of Tempe at the 5th and College Transit Center per MOA.

#### Contaminated and Hazardous Materials

- Construction monitoring and soil testing in support of LS 1 construction at Central and Camelback is completed. All materials categorized as clean and released to contractor for disposal.



- The Soil Monitoring and Management Plan is being implemented for excavation at Central and Camelback. To date no materials have demonstrated contamination levels above residential standards. All excavated materials suitable for backfill can be reused on site or disposed at a designated landfill.
- Completed asbestos removal for building in LS 5 to be demolished by contractor.
- Remediate discovered trash bits and septic well LS 5.

Regulator Compliance

- Secured concurrence from FTA that Change in Project Definition 5 (addition of Center Parkway Station) and Change 6 (expansion for LRV fleet from 36 to 50) are consistent with the FEIS/ROD and do not require Supplemental NEPA documentation.
- In cooperation with RE and SF contractor modified erosion control procedures to better meet objectives and character of the work zone. New procedure will reduce costs and be more effective in keeping the streets free of track out materials.

**Cost and Schedule – Variance Analysis**

Archaeology

Original Contract Value (CAC)	\$1,500,064
Approved Change Orders	\$400,000
Contract Value to date	\$1,900,064
Invoiced as of June 30, 2006	(\$2,280,366)
<u>Funds Available</u>	<u>(\$380,302)</u>

Hazardous Materials Assessment (CAC)

Original Contract Value	\$499,483
Approved Change Orders	(\$400,000)
Contract Value to date	\$99,483
Invoiced as of April 2006	(\$46,830)
Task orders issued not invoiced	(\$52,653)
<u>Funds Available</u>	<u>\$0</u>

Remediation and Treatment Fund (METRO)

Budget	\$1,004,000
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Expended or Committed	(\$150,680)
Data Recovery Report	(\$84,956)
ERI	(\$65,724)
<u>Funds Available</u>	<u>\$853,320</u>

### Issues and Solutions

- **Issue:** CAC contract for archaeology services has exceeded budget

**Solution:** METRO and CAC negotiated an internal transfer of budget to cover the estimated cost to complete archaeology field activities and environmental services. METRO will replenish the CAC funds transferred to cover archaeology and environmental services.



## 9. Real Estate

### Description

The LRT Project travels down main business arterials in the cities of Phoenix, Tempe and Mesa and approximately 815 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

- Nine additional parcels came under City control since last month, and 15 additional parcels became available for construction. Presently, 90 percent of the required properties are now under city control and 82 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, 198 relocations have now been completed and only 6 relocations remain. Two parcels came under City control for a total of 134 parcels and 6 parcels were made available for construction for a total of 115 parcels. Line Section 1 contains 153 parcels.
- In Line Section 2, all relocations have now been completed. Three parcels were made available for construction for a total of 69 parcels. Line Section 2 contains 123 parcels.
- In Line Section 3, only 6 relocations remain. Three parcels came under City control for a total of 259 parcels and 3 parcels were made available for construction for a total of 232 parcels. Line Section 3 contains 264 parcels.
- In Line Section 4, all of the relocations have now been completed. 106 parcels are now under City control and 101 parcels are available for construction. Line Section 4 contains 109 parcels.
- In Line Section 5, five relocations were completed and only 10 relocations remain. Six parcels came under City control for a total of 152 parcels and 3 parcels were made available for construction for a total of 149 parcels. Line Section 5 contains 166 parcels.
- In Line Sections 1, 2, 3 and 4, 18 building cut and re-faces were identified and 9 have been completed and 9 are currently underway. These building modifications require a structural engineering analysis, architectural and utility modifications, the procurement of relevant contractors and an extensive permitting process.



- The City of Phoenix Ombudsman program continues to be a successful process for negotiating administrative settlements. As of the end of July, 242 ombudsman meetings have been held resulting in 214 settlements. This number represents a negotiated success rate of 88 percent.
- 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	\$ 19,603,351	\$ 1,753,931	\$ 21,357,282
Total	\$135,817,501	\$23,975,136	\$159,792,637
Spent To Date	\$101,379,310	\$15,643,090	\$117,022,400
Balance Available	\$ 34,438,191	\$ 8,332,046	\$ 42,770,237

### Cost and Schedule – Variance Analysis

- Real Estate continues to be one of two key issues (utilities being the other) currently driving the project schedule and creating pressure on the ROD. 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

- In all Line Sections there are some parcels that remain unavailable for construction; however, the number of parcels that are negatively impacting the schedule has been reduced to a precious few. The energy of the project team is focused where it is needed most. Four key parcels in Line Section 1 are the most critical, and one of those has been acquired with one other nearly acquired since the level of urgency was raised. This is the kind of commitment from all parties which will help maintain the newly revised master schedule.



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

July 31, 2006

ACTIVITY	1 PHX	2 PHX	3 PHX	4 PHX	4 TEMPE	5 TEMPE	5 MESA	Totals
Full Takes	40	0	9	2	0	12	0	<b>63</b>
Partial Takes	113	123	255	106	1	109	45	<b>752</b>
<b>Total Affected Parcels</b>	<b>153</b>	<b>123</b>	<b>264</b>	<b>108</b>	<b>1</b>	<b>121</b>	<b>45</b>	<b>815</b>
Projected Relocations	204	23	32	32	0	40	0	<b>331</b>
Title Reports Completed	153	123	264	108	1	121	45	<b>815</b>
Legals sent to City	153	123	264	108	1	121	45	<b>815</b>
Appraisals Requested	153	123	264	108	1	121	45	<b>815</b>
Appraisals Completed	150	123	264	108	1	121	45	<b>812</b>
Offers Made	150	93	263	108	1	121	45	<b>781</b>
Offers Accepted	97	65	222	85	1	88	34	<b>592</b>
Escrow Closed <b>Acquisition Complete</b>	<b>91</b>	<b>45</b>	<b>180</b>	<b>82</b>	<b>1</b>	<b>84</b>	<b>19</b>	<b>502</b>
Condemnation Filed	24	14	27	11	0	19	12	<b>107</b>
OIP Received	13	8	23	9	0	19	12	<b>84</b>
ROE Signed	30	32	56	14	0	18	0	<b>150</b>
Relocations Underway	6	0	6	0	0	10	0	<b>22</b>
Relocations Completed	198	23	26	32	0	30	0	<b>309</b>
<b>Parcels Under City Control</b>	<b>134</b>	<b>85</b>	<b>259</b>	<b>105</b>	<b>1</b>	<b>121</b>	<b>31</b>	<b>736</b>
Parcels Available for Construction	115	69	232	100	1	119	30	<b>666</b>
Parcels Pending Release for Construction	19	16	27	5	0	2	1	<b>70</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, WilTel, 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
  - Right-of-way availability continues to constrain utility and contractor activities. Progress is being made on all parcels.
  - Southwest Gas (SWG) continues gas line relocation work on Camelback Road and plans to have most of the Camelback work finished by the end of July. The new gas lines will not be in service and the old lines removed until the Fry's property is available.
  - The re-sequencing team has reconsidered all wet and dry utility relocation issues for this Line Section. City of Phoenix cooperation has made this effort manageable. A new sequence for construction has been developed and updated construction plans are becoming available. All relocations originally planned to be placed underground will continue as planned. The contractor is expected to provide the trench on 19th Avenue.
  - Work on 19th Avenue is expected to begin August 14 with Southwest Gas relocations. The contractor's work will follow about a week later.
  - Qwest needs to install one manhole near Spectrum Mall pending right-of-way availability.
  - Current Cox design will relocate lines to locations off of 19th Avenue in most locations. Some lines can be placed on the overhead relocation.
  - Salt River Project Irrigation (SRPI) continues with the installation of the irrigation structures on the project as right-of-way becomes available. Salt River Project Power (SRPP) has work permits for the joint trench work on Camelback and is in the process of advertising for bids for the work.



- Line Section 2
  - Utility conflicts and coordination issues are being addressed at bi-weekly meetings held in the field office. These meetings increase contractor communication, and utility company accountability.
  - Archer Western has started APS underground conversion at the Camelback Station site.
  - Fishel, the MCI Contractor, has completed placing manholes and conduits. MCI has started pulling fiber and will begin splicing, which may take up to four weeks. LS2 Contractor activity will not be impacted.
  - Twelve APS electric easements are needed for pedestrian street lights. The proposed Right-of-Way is being surveyed to determine if the pedestrian street lights can be within the proposed right-of-way.
  - APS needs to demo/remove the 69 kV overhead crossing at Central and Virginia.
  - APS needs to pull the 12 kV cable at Central Avenue and Indian School Road and remove the existing overhead once the new cable is installed. This is the proposed power to TPSS No. 3.
  - SRP Irrigation will start placing pipe at Central Avenue and Mariposa mid October of 2006.
  - ADEQ facilities are in conflict with the proposed relocation of the SRP Irrigation Structure at the southwest corner of Camelback Road and Central Avenue, which will impact the private irrigation installation for LS1. The Easement at Parcel 30.2038 has been revised and approved by SRP. ADEQ submitted relocation plans of their facilities. These plans are being review by METRO and SRP-Water.
  - At the Grand Canal it appeared that the Qwest 20 duct conduits bank is in conflict with one of the bridge piers. Qwest's conduits were located in such a way that the 4-foot diameter drill shaft could not be drilled without damaging Qwest ducts. Herzog and METRO engineers are working expeditiously on a revised design. APS has allowed a window for APS 69 kV outage so Herzog can complete their work within the given time frame. An attempt is being made to work around the Qwest conduits. These conduits contain 16 cables and one fiber that serve the north valley of Phoenix. All precautions are being made to avoid damage. It would be very difficult to restore service and would be costly if conduits were damaged.



- Line Section 3
  - Utility conflicts and coordination issues are being addressed at bi-weekly meetings held in the field office. These meetings increase contractor communication, and utility company accountability.
  - Level 3 has completed relocation of duct bank and manholes from 22nd Street and Washington to Washington Street and 18th Street. The COP contractor, Tel-Tech/Fierro, continue to relocate COP ITD manholes along Washington Street. This has been completed up to 13th Street.
  - AWC and METRO continue to meet with APS to confirm revenue design on a weekly basis.
  - The project team continues to work with APS to implement design modifications as development pressures increase within the downtown area. The weekly coordination meeting that is held with APS representatives has been instrumental in facilitating the necessary changes of this work.
  - APS and Qwest have resumed their relocation at 23rd Street and Jefferson now that the Right-of-Way has been acquired. APS is pulling cable.
- Line Section 4
  - Utility conflicts and coordination issues are being addressed at bi-weekly meetings held in the field office. These meetings increase contractor communication, and utility company accountability.
  - APS and Qwest still need to demo overhead facilities, and remove power poles on Washington Street between 32nd Street and 30th Street.
  - Southwest Gas main between 50th Street and 48th Street 8-inch high pressure gas main installation is completed as well as the 2-inch service line. SWG continues to trench for the installation of the replacement 8-inch high pressure gas main and 2-inch service line below the yard lead tracks to MSF. There are two other areas that SWG found the 8-inch and the 2-inch gas main to have insufficient cover which is being addressed. SWG has started relocation at Lakeview at Washington Street and 37th Street and Washington Street. The LS4 Contractor is cooperating with METRO to work around this utility to mitigate delays while Southwest Gas completes its work.
- Line Section 5
  - Resolution of utility issues is addressed weekly in the Line Section 5 Utilities Coordination meeting.



- APS completed the overhead-to-underground power conversion from Mission Palms to Veterans' Way, enabling the Contractor to continue placement of Retaining Wall 1.
- SRP irrigation plans are 100 percent done for Apache Boulevard from Price Freeway to Smith and Main Street from Dobson to Sycamore. SRP irrigation facilities are impacting LS5 Contractor work at Price Freeway and Apache Boulevard.
- SWG continues to work on Apache Boulevard from Price Freeway to Tempe Canal.
- SRP Electric continues to trench and install street lights and is proceeding well.
- Potential for other utility conflicts is being reviewed in conjunction with the contractor's baseline schedule and three-week look-ahead.
- UPRR and APS conflicts at First Street are being resolved. There are two options either install a 36-inch or (2) 18-inch casing under the Union Pacific railroad
- Union Pacific Railroad needs to relocate a signal and a communication cabinet, before that can occur the LS5 Contractor needs to install a conduit for the new power source.

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

- Costs incurred to-date for prior rights utilities are within the Utility Budget. We are concerned that actual costs for SRP Irrigation and SRP Power will run over budget due to material costs and the fact that traffic control costs have increased, but remain confident that costs will be within project budget.
- Utility relocation continues to be one of two key issues driving the project schedule. Lack of available Right-of-Way and delays in completion of utility design have affected contractor construction schedules. METRO is working with the cities, the utility companies and the Contractors to develop strategies to streamline processes provide additional resources and create opportunities for work-around so that impacts to the Contractors' schedules are minimized.

### **Issues and Solutions**

- Weekly meetings continue to address any conflicts and coordination issues. Meetings are being held at the field office to better effect contractor communication with utilities as well as make the utilities accountable
- Define the APS and SRP Electric easements for the TPSS Site number 1 thru number 12 and number 14.

- Line Section 1 - SRP Irrigation easements have been defined but not all have been obtained. Several SRP Power easements are being revised due to METRO design revisions and new development projects. Parcel acquisitions and cost to cure items have been prioritized so as to coincide with the contractor's construction schedule and utility needs. METRO currently needs the access to key parcels to allow the third party utilities and contract work to continue. Efforts with City of Phoenix continue to obtain access.
- Line Section 2 - MCI still needs to relocate their fiber, which is a major relocation. The contractor is working around this area to mitigate delays.
- Line Section 3 - Level 3 and City Com need to relocate several manholes. The contractor is working around this area to mitigate delays.
- Line Section 4 - METRO must ensure that all utility relocations within the test track are complete, including the SWG 8-inch high pressure gas main that was recently discovered. The contractor is working around this area to mitigate delays.
- Line Section 5 - SRP irrigation relocation, SRP Power, Qwest and Cox still hinders the LS5 Contractor.

### Construction Photographs



SWG relocation 8-inch High Pressure Gas main at Washington Street and SR 202 in Line Section 4



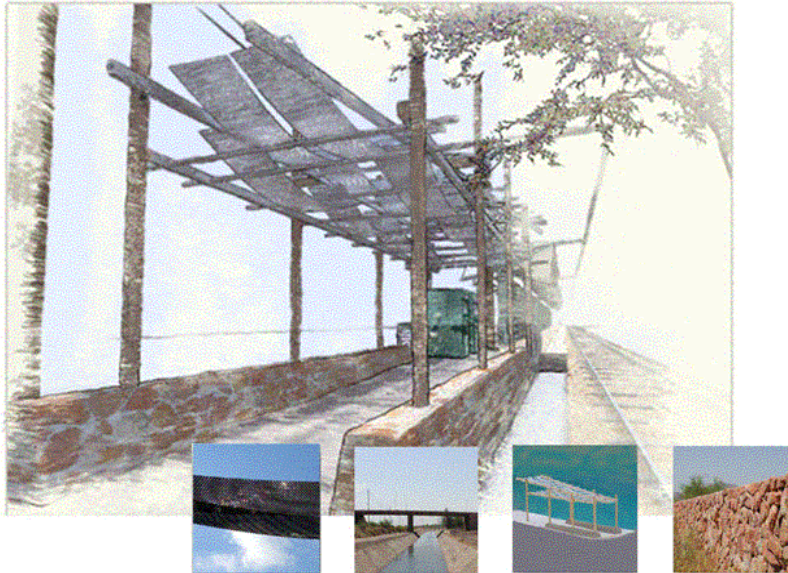
Level 3 relocating on Washington Street in Line Section 3

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

	<b>Percent</b>	<b>Budget</b>	<b>Earned</b>	<b>Cost to Date</b>	<b>Forecast</b>
<b>Line Section 1</b>	<b>56.0%</b>	<b>\$3,685,390</b>	<b>\$2,062,424</b>	<b>\$2,042,679</b>	<b>\$7,139,507</b>
<b>Line Section 2</b>	<b>71.3%</b>	<b>\$1,775,000</b>	<b>\$1,265,000</b>	<b>\$89,936</b>	<b>\$1,775,000</b>
<b>Line Section 3</b>	<b>82.2%</b>	<b>\$3,071,676</b>	<b>\$2,525,925</b>	<b>\$406,686</b>	<b>\$3,900,000</b>
<b>Line Section 4</b>	<b>89.4%</b>	<b>\$4,425,236</b>	<b>\$3,954,688</b>	<b>\$1,998,394</b>	<b>\$5,126,806</b>
<b>Line Section 5</b>	<b>56.3%</b>	<b>\$7,010,760</b>	<b>\$3,944,528</b>	<b>\$3,348,819</b>	<b>\$7,790,372</b>
<b>Maintenance Storage Facility</b>	<b>95.3%</b>	<b>\$320,230</b>	<b>\$305,230</b>	<b>\$397,876</b>	<b>\$378,879</b>
<b>Town Lake Bridge</b>	<b>100.0%</b>	<b>\$1,150,000</b>	<b>\$1,150,000</b>	<b>\$824,097</b>	<b>\$1,235,279</b>
<b>Projected Forecast Increase</b>	<b>0.0%</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$492,222</b>
<b>Contingency</b>	<b>0.0%</b>	<b>\$2,317,169</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Prior Rights Utilities</b>	<b>64.0%</b>	<b>\$23,755,461</b>	<b>\$15,207,795</b>	<b>\$9,108,487</b>	<b>\$27,838,065</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

- Buster Simpson will be working on Rio Salado Parkway to install his south beach sculpture at the same time as the Tempe Art Center walkway. Installation is scheduled to begin sometime after August.
- Installation for the brickwork art element on the south wall of Town Lake Bridge (TLB) is complete. Porcelain steel panels will be installed in August.
- A Pre-construction meeting with Roosevelt Station artist, Peter Richards was held and the outstanding installation issues were resolved. Archer Western Contractors (AWC) will have access to the Roosevelt station in December 2006 with art installation scheduled to begin soon after.



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

- Public Art activities remain on schedule and within budget.

### **Issues and Solutions**

- Continuing to monitor contract schedule issues.

## Station Finishes



### Description

The Station Finishes (SF) contract includes twenty-seven 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.

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) and automated ticket vending machines (TVM).



## Progress

- Numerous meetings and extensive coordination efforts culminated in resolution of the significant environmental issues at the Central Avenue/Camelback Transit Center and Mariposa Street. This activity paved the way toward the start of Station Finishes and LS-2 construction which began in July.
- Building and other permits for the Central/Camelback Transit Center have been issued by the City of Phoenix and were picked up by Archer Western Contractors (AWC). Construction was delayed by one week later than planned. The City has since clarified their inspection coordination procedures at this and all future Phoenix Station Finishes sites.
- Construction began at the Van Buren/1<sup>st</sup> Avenue Station with the portion of the station that is east of the platform provided by LS-3. This area includes storm water retention basins, landscaping and sidewalks tying into the existing Central Station transit center.
- Permits were issued by the City of Phoenix for the OPF No. 1 (Crew) Building located at Montebello/19<sup>th</sup> Avenue. Construction awaits clearance from the LS-1 Team.
- A Civil, Grading and Drainage permit was issued by the City of Phoenix for the 44<sup>th</sup> Street/Washington Transit Center, exclusive of the Security Building. A permit to construct the building is expected by early August 2006.
- A Change Notice was issued to AWC that resulted from ASU and the Cities of Tempe and Phoenix requests for minor design revisions at ASU destination stations (Van Buren/Central and 1<sup>st</sup> Avenue, Veterans' Way/College, and University Drive/Rural). Cost estimates for this work have been solicited by METRO from the SF Contractor and are to be reimbursed by ASU.
- METRO and GEC responses to initial comments on the Sycamore/Main Transit permit application received from the City of Mesa Building Safety Department are expected by early August 2006. METRO has identified for the City of Mesa all necessary new and extinguishable utility easements. Anticipated access (and permits) may be provided earlier than the scheduled date of January 2, 2007 for this site.

## Cost and Schedule – Variance Analysis

- A new (revised) schedule has been developed by AWC based upon the cross partnering sessions facilitated by METRO with Station Finishes, all Line Sections, Signals and Communications and TPSS.

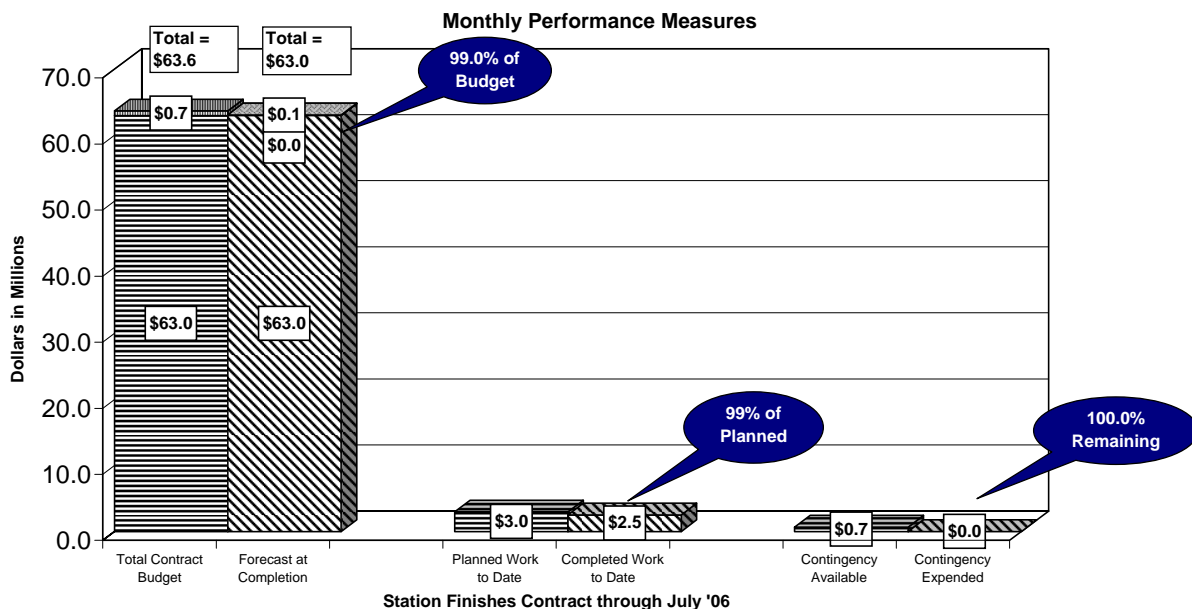


## Issues and Solutions

- Right of Entry for Spectrum Mall has not yet been procured. This combined with delayed receipt of building permits and SRP street design work are causing ongoing postponement to the start of construction at the Montebello/19<sup>th</sup> Avenue Transit Center. METRO, COP Public Transit, COP Real Estate, COP DSD and Legal, CAC and GEC staff continue to pursue real estate agreements, coordination work with SRP and building permit approvals.
- Final review comments on the draft METRO Way-Finding Signage Guide Manual need to be addressed by the Agency and GEC. A funding mechanism for completion of this signage and the system map graphic design and procurement remains under consideration.



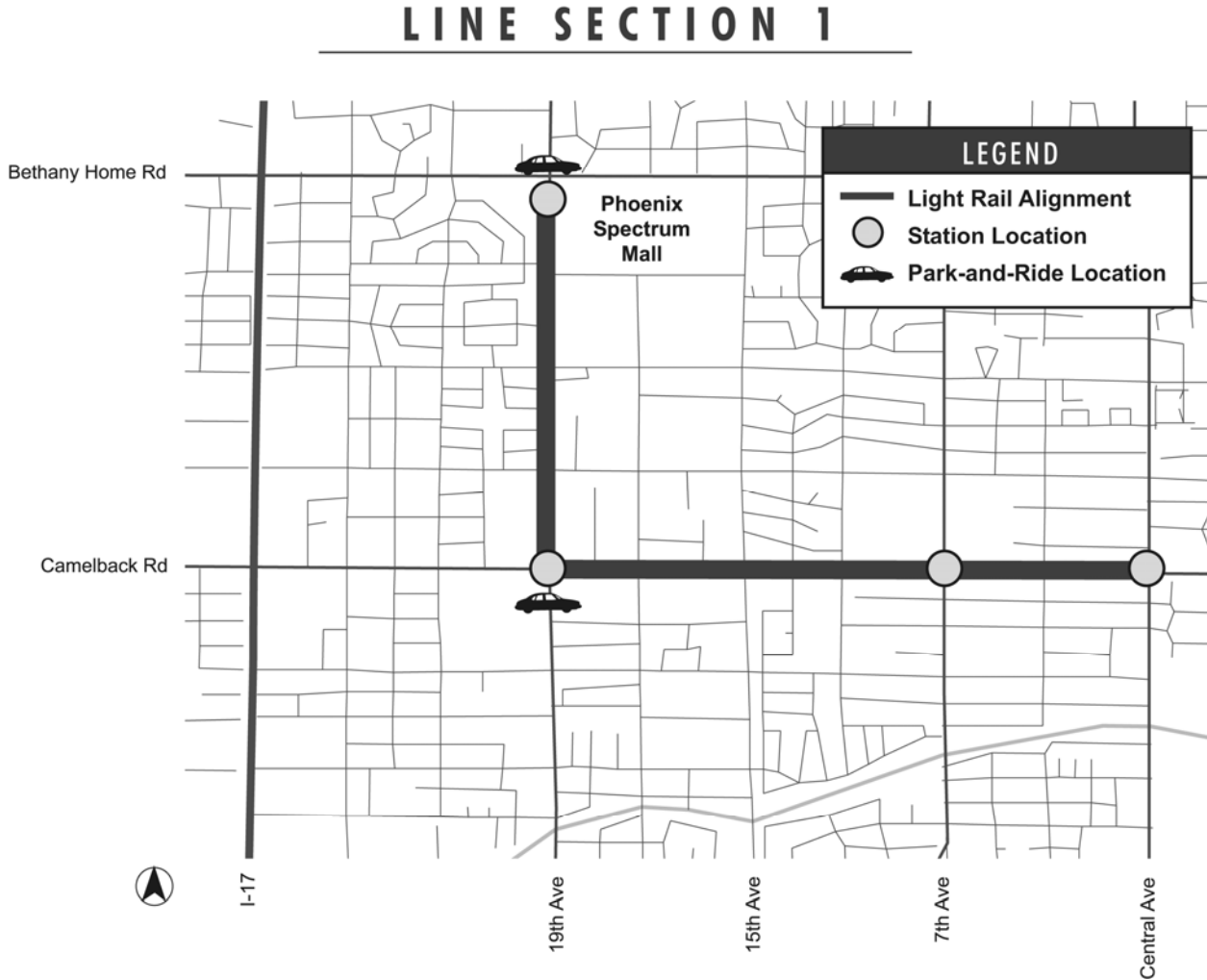
<b>Description:</b>		<b>3.2.1 Station Finishes</b>		
<b>PE/PA:</b>		<b>Steve Gottesman</b>		
<b>Contractor:</b>		<b>Archer Western Contractors</b>		
<b>Resident Architect:</b>		<b>Bob Yantzer</b>		
<b>Data Through:</b>		<b>May 15, 2006</b>		
<b>Cumulative</b>		<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Original Budget	\$52,985,000	\$9,988,000	\$62,973,000
2	Executed Change Orders	\$0	\$0	\$0
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$52,985,000	\$9,988,000	\$62,973,000
5	Work Scheduled	\$2,897,792	\$82,351	\$2,980,143
6	Work Earned	\$2,527,657	\$0	\$2,527,657
7	Actual Expenditures	\$2,515,176	\$0	\$2,515,176
8	Forecast to Complete Base (4-7)	\$50,469,824	\$9,988,000	\$60,457,824
9	Change Orders Pending Execution	\$50,000	\$0	\$50,000
10	Forecast at Completion (7+8+9)	\$53,035,000	\$9,988,000	\$63,023,000
11	Percent Budget Expended (7/4)	4.7%	0.0%	4.0%
12	Percent Planned (5/4)	5.5%	0.8%	4.7%
13	Earned Percent Complete (6/4)	4.8%	0.0%	4.0%
14	Schedule Performance (6/5)	0.87	0.00	0.85
15	Cost Performance (6/7)	1.00	N/A	1.00
16	Contingency Budget	\$546,000	\$149,173	\$695,173
17	Remaining Contingency	\$546,000	\$149,173	\$695,173
18	Percent Contingency Remaining (17/16)	100.0%	100.0%	100.0%
<b>Period</b>				
1	Original 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)	\$52,985,000	\$0	\$0
5	Work Scheduled (Cumm - Last Period)	\$371,418	\$1,249,534	\$1,620,952
6	Work Earned (Cumm - Last Period)	\$0	\$82,351	\$82,351
7	Actual Expenditures (Cumm - Last Period)	\$0	\$0	\$0
8	Forecast to Complete Base (4-7)	\$52,985,000	\$0	\$52,985,000
9	Change Orders Pending Execution	\$50,000	\$0	\$50,000
10	Forecast at Completion (7+8+9)	\$53,035,000	\$0	\$53,035,000
11	Percent Budget Expended (7/4)	0.0%	0.0%	0.0%
12	Percent Planned (5/4)	0.7%	12.5%	2.6%
13	Earned Percent Complete (6/4)	0.0%	0.8%	0.1%
14	Schedule Performance (6/5)	0.00	0.07	0.05
15	Cost Performance (6/7)	#N/A	N/A	#N/A
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



Note: No update was submitted during the reporting period

## 12. Facilities

### Line Section 1



### Description

Line Section 1 is 2.27 miles in length, and begins on 19<sup>th</sup> 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 19<sup>th</sup> Avenue and Montebello, 19<sup>th</sup> Avenue and Camelback Road, and 7<sup>th</sup> Avenue and Camelback Road.



## Progress

- Kiewit continues potholing, water line installation, sewer line installation and private irrigation work at various locations along the South Side of Camelback Road. They are also working on street light installation and landscape irrigation on the South Side of Camelback. Much of the work is being done at night. Private irrigation tie-in work utilizing “mini dry-ups” are being coordinated well between KWC and Salt River Project Irrigation.
- All work on 19th Avenue continues to be on hold; however, this month re-sequencing meetings have been held weekly with COP, Utility Companies, Kiewit, and METRO all in attendance. Quite a bit of progress has been made in resolving outstanding issues concerning the utility and contract work on 19th Avenue. Assuming that SWG work starts on August 14<sup>th</sup> as discussed below, KWC will start the Joint Trench and Sewer work within two weeks of the gas company starting. This approach will allow all utility work to flow as smoothly as possible.
- South West Gas (SWG) continues gas line relocation work on Camelback Road and plans on having most of their work finished by the end of month. They will not have the new gas lines on Camelback in service and the old lines removed until Fry’s is available. Based on the re-sequencing meetings the present plan is for the SWG work to begin on 19<sup>th</sup> Avenue on August 14<sup>th</sup>. They will work two crews from Bethany Home Road south and from Camelback road north.
- Salt River Project Irrigation (SRPI) continues with the installation of the irrigation structures on the project and Salt River Project Power (SRPP) is in the process of getting work permits for the joint trench work on Camelback. If all goes as planned SRPP should start the Camelback Joint Trench in the later part of August 2006.
- As mentioned before traffic control has been seamlessly combined between all participants in the project and continues to be successful with virtually no complaints from the various stake holders or traveling public.

## Cost and Schedule – Variance Analysis

- Underground utilities on 19<sup>th</sup> Avenue have slowed down progress on the project; also prolonged acquisition timeframes have impacted construction. A Mitigation Plan will be prepared to recover lost time once 19<sup>th</sup> Avenue work is re-started and the acquisition of these parcels has been completed.
- Planned progress is currently being evaluated as the master schedule revisions are being implemented.

### Issues and Solutions

- Real Estate and “cost-to-cure” items continue to be a major concern. There are several parcels on LS1 that are not available. The Contractor and third party utilities know of the lack of these key work areas. They are amending their work plans as much as possible, but crucial systems tie-ins can not be finished until the parcels are available. METRO now needs the access to key parcels to allow the third party utilities and contract work to continue.

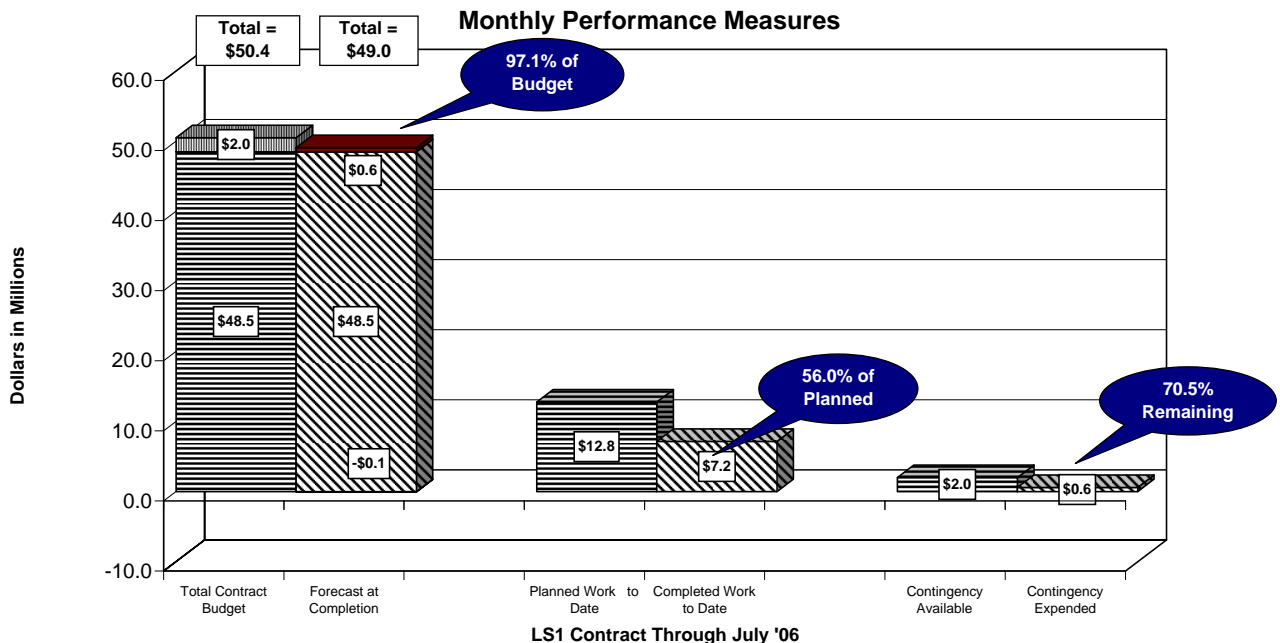
### Construction Photos



Existing sanitary cistern on the southside of Camelback Road 150-foot west of 7<sup>th</sup> Avenue



<b>Description:</b>		<b>3.1.1 Line Section 1</b>		
<b>PE/PA:</b>		<b>Alvin Livingstone</b>		
<b>Contractor:</b>		<b>Kiewit Western Co.</b>		
<b>Resident Engineer:</b>		<b>Bill Blane</b>		
<b>Data Through:</b>		<b>April 30, 2006</b>		
	<b>Cumulative</b>	5309	CNPA	Total
1	Budget	\$37,951,658	\$10,533,342	\$48,485,000
2	Executed Change Orders	\$592,175	\$0	\$592,175
3	Budget Transfers	\$2,500,000	\$0	\$2,500,000
4	Current Budget (1+2+3)	\$41,043,833	\$10,533,342	\$51,577,175
5	Work Scheduled	\$9,339,607	\$3,453,840	\$12,793,447
6	Work Earned	\$6,005,633	\$1,159,267	\$7,164,900
7	Actual Expenditures	\$6,006,696	\$1,157,115	\$7,163,811
8	Forecast to Complete Base (4-7)	\$35,037,137	\$9,376,227	\$44,413,364
9	Change Orders Pending Execution	-\$62,350	\$9,090	-\$53,260
10	Forecast at Completion (7+8+9)	\$40,981,483	\$10,542,432	\$51,523,915
11	Percent Budget Expended (7/4)	14.6%	11.0%	13.9%
12	Percent Planned (5/4)	22.8%	32.8%	24.8%
13	Earned Percent Complete (6/4)	14.6%	11.0%	13.9%
14	Schedule Performance (6/5)	0.64	0.34	0.56
15	Cost Performance (6/7)	1.00	1.00	1.00
16	Contingency Budget	\$1,963,056	\$44,811	\$2,007,867
17	Remaining Contingency	\$1,370,881	\$44,811	\$1,415,692
18	Percent Contingency Remaining (17/16)	69.8%	100.0%	70.5%
	<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)	\$41,043,833	\$10,533,342	\$51,577,175
5	Work Scheduled (Cumm - Last Period)	\$1,918,544	\$1,598,542	\$3,517,086
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)	\$41,043,833	\$10,533,342	\$51,577,175
9	Change Orders Pending Execution	\$135,000	\$8,880	\$143,880
10	Forecast at Completion (7+8+9)	\$41,178,833	\$10,542,222	\$51,721,055
11	Percent Budget Expended (7/4)	0.0%	0.0%	0.0%
12	Percent Planned (5/4)	4.7%	15.2%	6.8%
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)	#N/A	#N/A	#N/A
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



Note: No update was submitted during the reporting period

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 various underground utilities throughout the project. They have completed the pressure and bacterial test for several firelines and hydrants and put this line back in service. They are now installing various storm drain laterals, sewer, water and laterals, and electrical conduits throughout the project.
- The sidewalk area north and south of the Grand Canal Bridge and along the easterly side of Central opposite Central High School have been demolished, and are currently being graded, formed, and poured. Herzog completed installing utilities on north and south approaches of the easterly half of the Grand Canal Bridge and have begun demolishing the easterly half of the bridge. Traffic is currently using the new westerly half of the bridge in both directions. Herzog is working with APS to coordinate a convenient time in which we can work around the high voltage line, and drill the new piers. Drilling is expected to begin in early August, at night.
- Work has begun at the Camelback Station Site and Herzog is coordinating with Archer Western. Utilities are the first order of work on site.
- Light poles are being restored, painted and placed on new foundations along the easterly half of Central Avenue.
- Wall installations and driveway work has begun at Pyramid-on-Central and other locations as part of the Contractor's design-build effort in the Contract.
- Herzog continues potholing activities between Osborn and Thomas Road in preparation for the upcoming utility relocations. Some waterline work is underway this month.
- Traffic signal layout and installation continue this month. So far three intersections are complete.
- No lost time injuries occurred this month.
- Contractor received a 90 percent score on their Community Advisory Board (CAB) review this month.

## Cost and Schedule – Variance Analysis

- Schedule impacts from Environmental issues at the superfund site at the corner of Central Avenue and Camelback Road. Other schedule impacts include conflicts with underground utilities and design changes.
- METRO has issued several change notices to Herzog for pricing/credit. Several change orders are being performed on the job, mostly concerning utility work-a-rounds.
- Planned progress is currently being evaluated as the master schedule revisions are being implemented.

## Issues and Solutions

- Line Section 2 continues to have parcels that remain unavailable to the contractor; however, parcels and access issues are being resolved every day and do not currently impact the project. METRO will continue to meet with COP Real Estate to ensure that the proper attention is being placed on acquisition of all remaining LS2 parcels. No impacts at this time.
- Utility conflicts continue to occur. METRO is working diligently with Herzog to perform work-arounds and other mitigation processes as needed to keep on schedule.
- Ninyo & Moore has been tasked to monitor for any environmental soil contamination during excavation at the Camelback Station site. Clean site and access issues are being addressed by METRO and Herzog Corporate. Full access has been granted to the Contractor this month.
- Several major design adjustments, including protection of the 54" waterline at Indian School Road/Central and the 24" waterline at Osborn, are being completed and should be implemented soon.

## Construction Photos



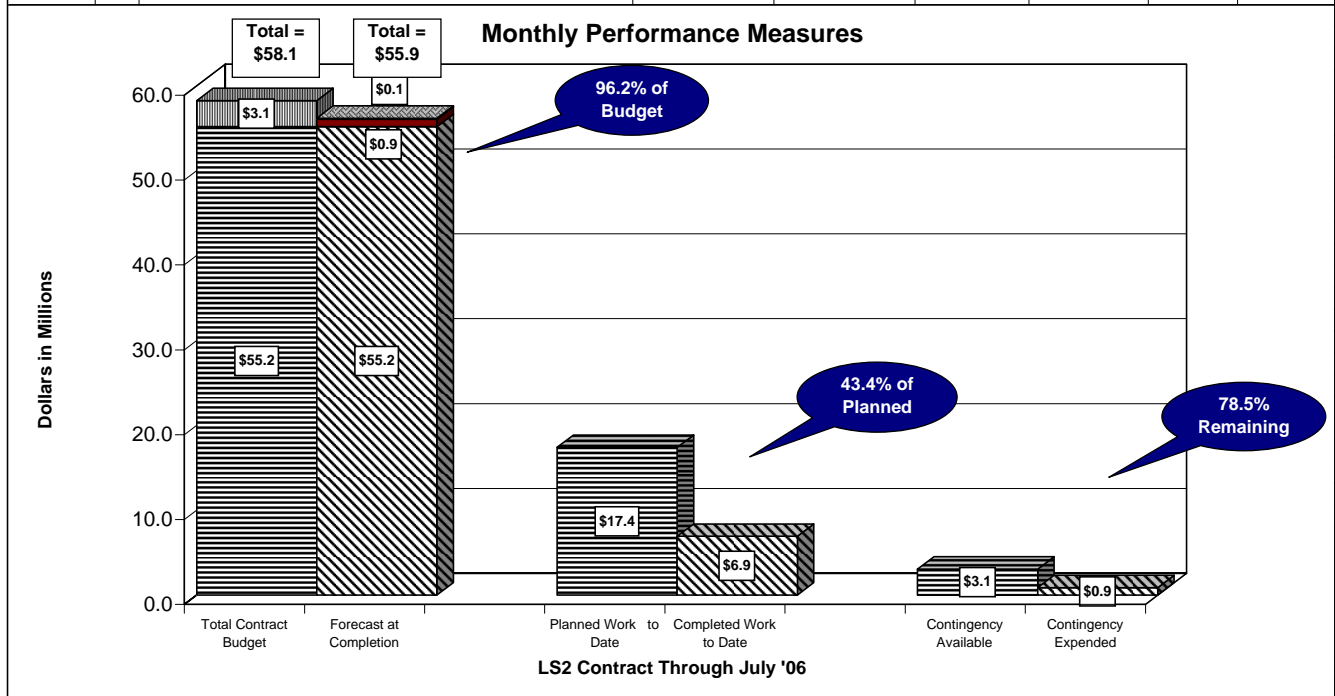
Concrete being placed around collar at Manhole 21.



Sidewalk Pour near Central High School.

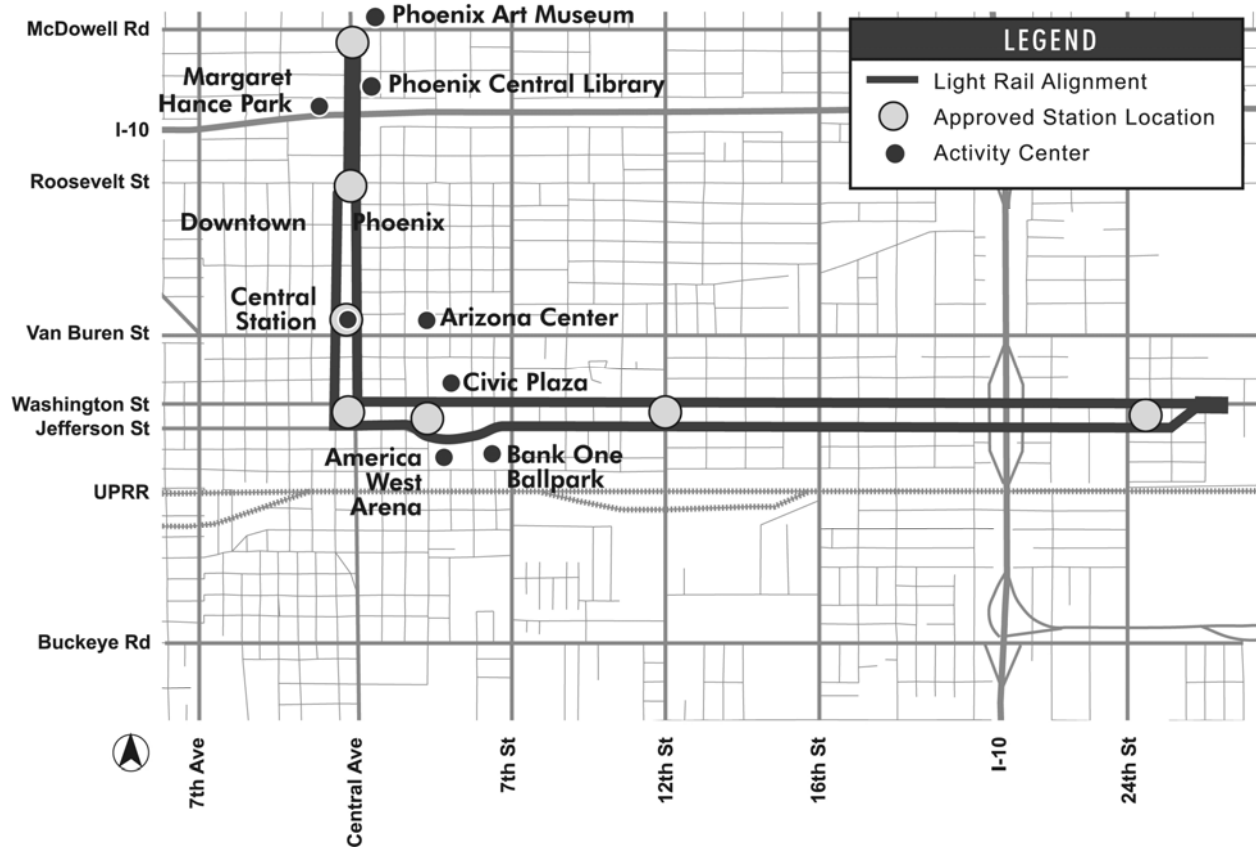


<b>Description:</b>		<b>3.1.2 Line Section 2</b>		
<b>PE/PA:</b>		<b>Alvin Livingstone</b>		
<b>Contractor:</b>		<b>Herzog Contracting Corporation</b>		
<b>Resident Engineer:</b>		<b>Matt McMenamin</b>		
<b>Data Through:</b>		<b>May 31, 2006</b>		
	<b>Cumulative</b>	5309	CNPA/Other	Total
1	Budget	\$48,425,124	\$6,762,248	\$55,187,372
2	Executed Change Orders	\$719,088	\$0	\$719,088
3	Budget Transfers	\$10,000	\$152,767	\$162,767
4	Current Budget (1+2+3)	\$49,154,212	\$6,915,015	\$56,069,227
5	Work Scheduled	\$14,482,574	\$2,931,653	\$17,414,227
6	Work Earned	\$6,018,943	\$913,267	\$6,932,210
7	Actual Expenditures	\$6,031,943	\$844,425	\$6,876,368
8	Forecast to Complete Base (4-7)	\$43,122,269	\$6,070,590	\$49,192,859
9	Change Orders Pending Execution	\$52,788	\$59,236	\$112,024
10	Forecast at Completion (7+8+9)	\$49,154,212	\$6,974,251	\$56,128,463
11	Percent Budget Expended (7/4)	12.3%	12.2%	12.3%
12	Percent Planned (5/4)	29.5%	42.4%	31.1%
13	Earned Percent Complete (6/4)	12.2%	13.2%	12.4%
14	Schedule Performance (6/5)	0.42	0.31	0.40
15	Cost Performance (6/7)	1.00	1.08	1.01
16	Contingency Budget	\$3,050,401	\$13,293	\$3,063,694
17	Remaining Contingency	\$2,321,313	\$13,293	\$2,181,839
18	Percent Contingency Remaining (17/16)	76.1%	100.0%	71.2%
<b>Period</b>				
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	\$169,239	\$0	\$169,239
3	Budget Transfers	\$0	\$45,017	\$45,017
4	Current Budget (1+2+3)	\$49,154,212	\$6,915,015	\$56,069,227
5	Work Scheduled (Cumm - Last Period)	\$4,595,085	\$0	\$4,595,085
6	Work Earned (Cumm - Last Period)	\$937,150	\$134,685	\$1,071,835
7	Actual Expenditures (Cumm - Last Period)	\$943,579	\$67,845	\$1,011,424
8	Forecast to Complete Base (4-7)	\$48,210,633	\$6,847,170	\$55,057,803
9	Change Orders Pending Execution	-\$108,326	\$4,660	-\$103,666
10	Forecast at Completion (7+8+9)	\$49,045,886	\$6,919,675	\$55,965,561
11	Percent Budget Expended (7/4)	1.9%	1.0%	1.8%
12	Percent Planned (5/4)	9.3%	0.0%	8.2%
13	Earned Percent Complete (6/4)	1.9%	1.9%	1.9%
14	Schedule Performance (6/5)	0.20	N/A	0.23
15	Cost Performance (6/7)	0.99	1.99	1.06
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



## 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 1 through 8, 13 and 14 installing storm sewer, sanitary sewer and water service. AWC is continuing to install traffic features and wiring on traffic signals in Segments 1 through 15. Additionally AWC is proceeding with OCS foundations, lighting conduits and foundations, irrigation as required along ROW and stations.
- AWC continues to work crews 6-7 days and 4 nights a week.
- AWC is currently placing foundations for Roosevelt/Central station and demolishing existing walkway at the Washington/3<sup>rd</sup> St station in preparation for foundation excavation. They are also excavating the Washington/24<sup>th</sup> St station foundation. They have completed the platform foundations at Jefferson Street and 3rd Street and 1<sup>st</sup> Ave and Jefferson as well as completed excavation of Roosevelt and Central and Roosevelt and 1<sup>st</sup> Ave. AWC is mobilizing on the Washington/3<sup>rd</sup> Street station site.
- AWC has paved Central Ave from Washington to Van Buren and has completed bus bay pavement on Central between Van Buren/Polk. They have also placed partial paving on Washington between 1<sup>st</sup> St and 1<sup>st</sup> Ave to facilitate rail installation work.
- Level 3 has completed relocation of duct bank and manholes at 22<sup>nd</sup> Street and Washington Street and moved to Washington/18<sup>th</sup> Street. COP contractor Telltech/Fiero continue to relocate COP ITD manholes along Washington. This has been completed up to 13<sup>th</sup> street. AWC and METRO continue to meet with APS to confirm design of revenue service.



- AWC has completed plinth concrete placement on the east and west sides of the Deck Park Bridge and is proceeding with welding T-rail strings for placement.
- AWC has installed 659.0 lf of embedded track guideway on Central from Monroe to Van Buren and Jefferson from Central to 1<sup>st</sup> St. AWC is currently preparing embedded track guideway on Jefferson between 1<sup>st</sup> Street, 2<sup>nd</sup> Street and on Central from Van Buren to Polk. AWC has also started excavation of guideway from match point of LS-4 to 25<sup>th</sup> Street on Washington and Jefferson.

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

- AWC has submitted a revised baseline schedule extending the completion date, which has not been approved and returned by METRO for coordination with the current master schedule. The interim progress schedule indicates the contractor has completed 26 percent of the work.
- Planned progress is currently being evaluated as the master schedule revisions are being implemented.

### **Issues and Solutions**

- Bi-weekly meetings continue to address any conflicts and coordination issues. Meetings are being held at the field office to better effect contractor communication with utilities as well as make the utilities accountable.
- Weekly APS meetings are also continuing to better facilitate the revenue installation and expedite any required changes.
- ROW acquisition is nearly complete with only three or four outstanding properties in condemnation.
- METRO has successfully negotiated a settlement with AWC to resolve the water shut down issues with the COP concerning the provision of current survey data, and temporary accommodations for water and fire protection.

**Construction Photographs**



Guideway Subgrade Preparation



Roosevelt/Central Station Foundation Formwork



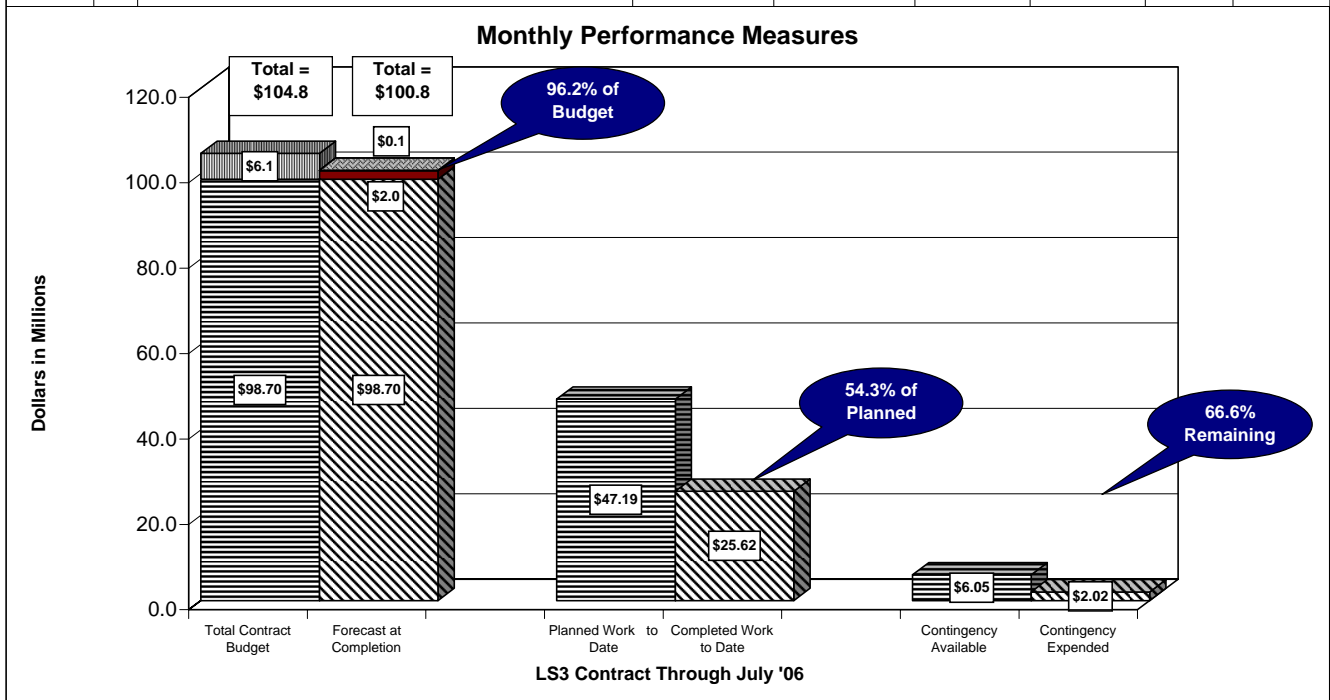
Demolition of Central pavement between Polk and Fillmore



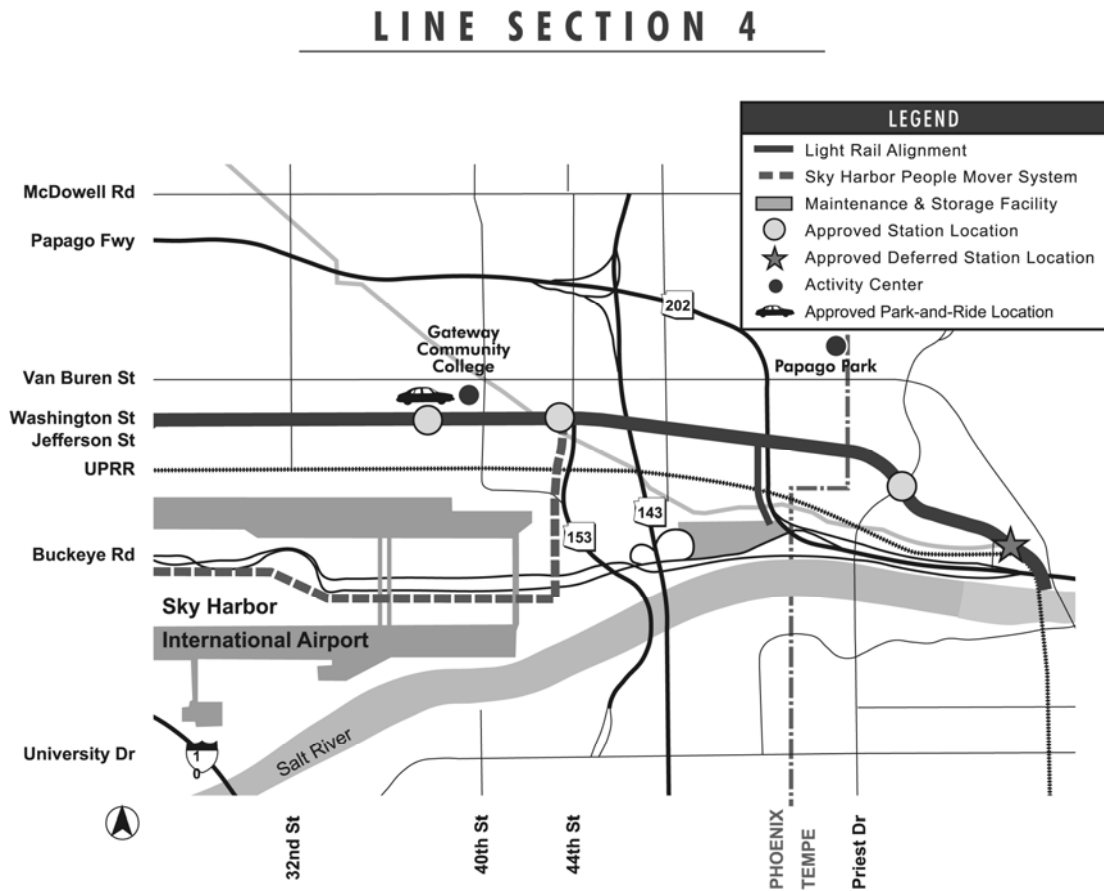
Central Bus Way pavement between Van Buren and Polk



<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>June 28, 2006</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	\$1,919,781	\$25,000	\$1,944,781
3	Budget Transfers	\$23,831	\$54,051	\$77,882
4	Current Budget (1+2+3)	\$81,192,229	\$19,531,403	\$100,723,632
5	Work Scheduled	\$35,033,974	\$12,156,064	\$47,190,038
6	Work Earned	\$19,120,812	\$6,495,726	\$25,616,538
7	Actual Expenditures	\$19,145,379	\$6,499,560	\$25,644,939
8	Forecast to Complete Base (4-7)	\$62,046,850	\$13,031,843	\$75,078,693
9	Change Orders Pending Execution	\$8,503	\$41,850	\$50,353
10	Forecast at Completion (7+8+9)	\$81,200,732	\$19,573,253	\$100,773,985
11	Percent Budget Expended (7/4)	23.6%	33.3%	25.5%
12	Percent Planned (5/4)	43.1%	62.2%	46.9%
13	Earned Percent Complete (6/4)	23.6%	33.3%	25.4%
14	Schedule Performance (6/5)	0.55	0.53	0.54
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	\$3,752,282	\$381,610	\$4,028,299
18	Percent Contingency Remaining (17/16)	66.4%	94.8%	66.6%
	<b>Period</b>			
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	-\$15,909	\$0	-\$15,909
3	Budget Transfers	\$0	\$2,198	\$2,198
4	Current Budget (1+2+3)	\$81,192,229	\$19,531,403	\$100,723,632
5	Work Scheduled (Cumm - Last Period)	\$6,223,723	\$0	\$6,223,723
6	Work Earned (Cumm - Last Period)	\$2,395,917	\$677,710	\$3,073,627
7	Actual Expenditures (Cumm - Last Period)	\$2,395,303	\$607,171	\$3,002,474
8	Forecast to Complete Base (4-7)	\$78,796,926	\$18,924,232	\$97,721,158
9	Change Orders Pending Execution	\$70,266	\$16,850	\$87,116
10	Forecast at Completion (7+8+9)	\$81,262,495	\$19,548,253	\$100,810,748
11	Percent Budget Expended (7/4)	3.0%	3.1%	3.0%
12	Percent Planned (5/4)	7.7%	0.0%	6.2%
13	Earned Percent Complete (6/4)	3.0%	3.5%	3.1%
14	Schedule Performance (6/5)	0.38	#N/A	0.49
15	Cost Performance (6/7)	1.00	1.12	1.02
16	Contingency Budget	\$6,398,232	\$1,231,072	\$7,629,304
17	Remaining Contingency	\$6,414,141	\$1,228,874	\$7,643,015
18	Percent Contingency Remaining (17/16)	100.2%	99.8%	100.2%



## Line Section 4



### Description

Line Section 4 guideway is approximately 5.4 miles, from 26<sup>th</sup> 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 38<sup>th</sup> Street, 44<sup>th</sup> Street and Priest Drive.

### Progress

- Lakeside Drive to Center Parkway: Installation of sanitary manhole, relocation of sanitary lines and removal of sanitary manhole under guide-way; installation of irrigation sleeves and piping, re-connection to existing irrigation controller and repair to existing irrigation lines and valves.



- Center Parkway to 56th Street: Continued guide-way construction; placed track slabs and curbs at various locations from Trillium Drive to 56<sup>th</sup> Street; completed the guide-way at Papago Hills Drive intersection and opened it to traffic as a turn around due to the closure of the Priest Drive intersection; closed Priest Drive intersection to north/south traffic, removed the roadway pavement and graded all in the guide-way, installed the combined system ductbank and track drainage piping, poured the two embedded track slabs. In exchange for permission from the City of Tempe to have a full and extended closure of this intersection the embedded track construction was expedited by the contractor with the provision that it be reopened before the ASU students started to arrive on August 15, 2006.
- 56th Street to 50th Street: Removed the roadway pavement and excavated the guide-way subgrade from 56<sup>th</sup> Street to 54<sup>th</sup> Place; installed OCS foundations, offset storm drainage manholes and the combined system ductbank; began and completed the construction of the special track bathtub foundation for right track turnout to the yard lead track to the Maintenance and Storage facility (MSF); South West Gas (SWG) continued to trench for the installation of the replacement 8-inch high pressure gas main and 2-inch service line below the yard lead tracks to MSF.
- 50<sup>th</sup> Street to 48<sup>th</sup> Street: SW Gas completed the installation of the replacement 8-inch high pressure gas main as well as the 2-inch service line; contractor began pot holing for OCS foundations and began installing off set storm drain manholes.
- 48th Street to 44th Street: Removed the roadway AC and PCCP pavement and excavated the subgrade in the guide-way; began installing off set storm drain manholes and track drainage piping; archaeological monitoring and resource recovery is ongoing.
- 44th Street to 40th Street: Installation of storm drains and water mains west of 44<sup>th</sup> Street to the Grand Canal; excavated for the APM foundation, formed and placed the foundation slab, north and south walls; removed of abandoned sanitary sewer from the Grand Canal to 40<sup>th</sup> Street; placed brick pavers at bus stops.
- 40<sup>th</sup> Street to 26<sup>th</sup> Street: Continued the installation of advanced utility crossings under the LRV guide-way from west of the 36<sup>th</sup> to 32<sup>nd</sup> Streets; completed the 36-inch RGRCP and CIP junction structures for SRP Irrigation across Washington Street at 40<sup>th</sup> Street; began placing fill material in the Gateway Community College detention basin west of 38<sup>th</sup> Street.
- Washington Street Bridge: Formed and placed the south half of both bridge abutments; formed wing walls; delivered and installed all remaining pre-stressed bridge beams.

### Cost and Schedule – Variance Analysis

- The contract schedule is now divided into four milestones. The METRO targets for Milestones 1 and 2 have been integrated with follow-on contractors for TES and S&C to determine the earliest possible start for TES, S&C and Station Finishes in the test track area. There is no forecasted impact to the start of testing in April 2007.
- Planned progress is currently being evaluated as the master schedule revisions are being implemented.

### Issues and Solutions

- Progress continues on the re-facing of buildings that intrude into the new right-of-way.
- The replacement of 8-inch high pressure SWG main and 2-inch service line below the tracks that cross Washington Street at Lake View Drive has been added to this franchise utility's scope of work. This relocation is being done now before the LS4 Contractor begins its work in this area.

### Construction Photographs



Guideway placement east of 56<sup>th</sup> Street



Placement of the APM foundation west of 44<sup>th</sup> Street



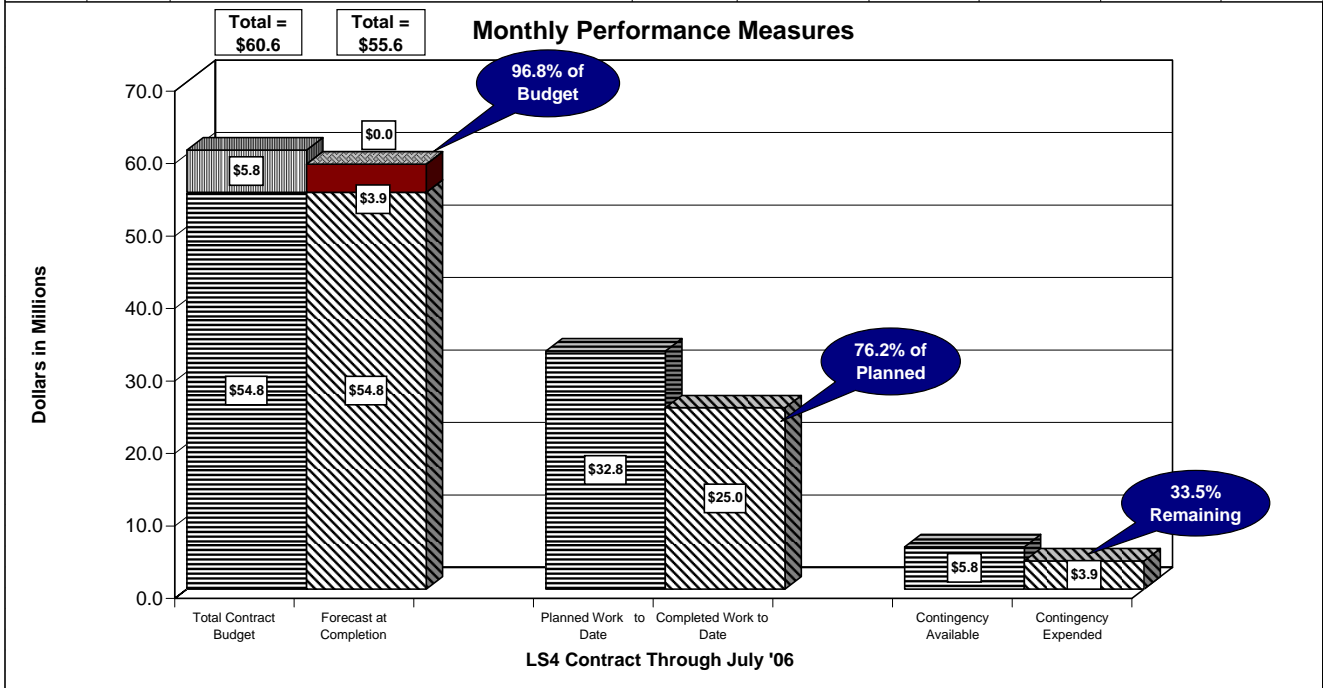
Offset storm drain manhole construction



OCS foundation excavation

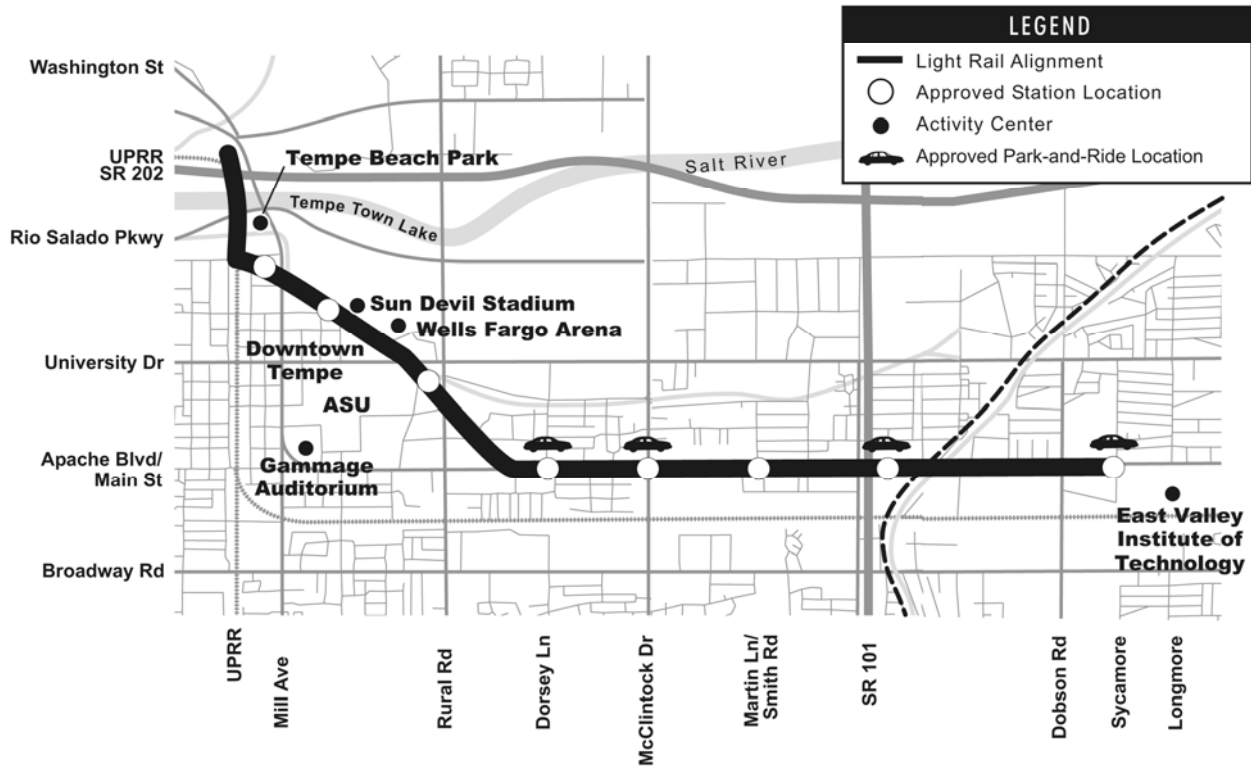


<b>Description:</b>		<b>3.1.4 Line Section 4</b>		
<b>PE/PA:</b>		<b>Avrum Loewenstein</b>		
<b>Contractor:</b>		<b>Sundt/Stacey Witbeck</b>		
<b>Resident Engineer:</b>		<b>Marty Spong</b>		
<b>Data Through:</b>		<b>June 30, 2006</b>		
<b>Cumulative</b>				
		<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1	Budget	\$47,869,894	\$6,880,853	\$54,750,747
2	Executed Change Orders	\$3,829,405	-\$251,173	\$3,578,232
3	Budget Transfers	-\$117,262	\$1,278,733	\$1,161,471
4	Current Budget (1+2+3)	\$51,582,037	\$7,908,413	\$59,490,450
5	Work Scheduled	\$27,221,140	\$5,628,806	\$32,849,946
6	Work Earned	\$20,268,273	\$4,749,949	\$25,018,222
7	Actual Expenditures	\$21,138,911	\$4,828,082	\$25,966,993
8	Forecast to Complete Base (4-7)	\$30,443,126	\$3,080,331	\$33,523,457
9	Change Orders Pending Execution	\$56,817	\$1,171,510	\$1,228,327
10	Forecast at Completion (7+8+9)	\$51,638,854	\$9,079,923	\$60,718,777
11	Percent Budget Expended (7/4)	41.0%	61.0%	43.6%
12	Percent Planned (5/4)	52.8%	71.2%	55.2%
13	Earned Percent Complete (6/4)	39.3%	60.1%	42.1%
14	Schedule Performance (6/5)	0.74	0.84	0.76
15	Cost Performance (6/7)	0.96	0.98	0.96
16	Contingency Budget	\$5,662,190	\$178,928	\$5,841,118
17	Remaining Contingency	\$1,775,968	\$178,928	\$1,954,896
18	Percent Contingency Remaining (17/16)	31.4%	100.0%	33.5%
<b>Period</b>				
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	\$14,122	-\$426,443	-\$412,321
3	Budget Transfers	-\$264,611	\$497,373	\$232,762
4	Current Budget (1+2+3)	\$51,582,037	\$7,908,413	\$59,490,450
5	Work Scheduled (Cumm - Last Period)	\$3,508,055	\$1,756,540	\$5,264,595
6	Work Earned (Cumm - Last Period)	\$1,564,661	\$955,427	\$2,520,088
7	Actual Expenditures (Cumm - Last Period)	\$1,694,019	\$870,401	\$2,564,420
8	Forecast to Complete Base (4-7)	\$30,443,126	\$3,080,331	\$33,523,457
9	Change Orders Pending Execution	-\$2,430,632	\$825,649	-\$1,604,983
10	Forecast at Completion (7+8+9)	\$29,706,513	\$4,776,381	\$34,482,894
11	Percent Budget Expended (7/4)	3.3%	11.0%	4.3%
12	Percent Planned (5/4)	6.8%	22.2%	8.8%
13	Earned Percent Complete (6/4)	3.0%	12.1%	4.2%
14	Schedule Performance (6/5)	0.45	0.54	0.48
15	Cost Performance (6/7)	0.92	1.10	0.98
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 and begins at the 1st Street grade crossing in Tempe and progresses 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 completed Retaining Wall 5 in the parking lot area from Ash Avenue toward First Street.
- The Contractor installed curb and gutter on both sides of 3rd Street, and replaced the existing pavement on 3rd Street to match the new curb line.
- APS completed the overhead-to-underground power conversion from Mission Palms to Veterans' Way, enabling the Contractor to continue placement of Retaining Wall 1.
- The Contractor completed Retaining Wall 6, located between Walls 3 and 4, along the Creamery Route, as well as the waterline crossing at the west end of Lot 55, adjacent to Retaining Wall 7.
- The Contractor began grading the Promenade area westward from Sun Devil Stadium in preparation for placing pavers, and began placement of gabion walls, working around archeological data recovery areas to do this work.
- The Contractor worked around numerous archeological data recovery sites to complete waterline installation and utility work, place street light foundations and conduit, and place guideway curb, and grade for paving along Veterans' Way.
- The Contractor placed OCS foundations and guideway ductbank east and west from 6th Street, including a special OCS foundation to avoid a nitrogen pipeline.
- The Contractor completed the Rural Road transition into the new Terrace Road alignment, and the closure of the old Terrace Road.
- The Contractor continued roadway work along the north side of Apache Boulevard in preparation for paving. The Contractor continued placement of street light foundations on the south side. Third-party utility companies continued relocations eastward along Apache Boulevard.
- The Contractor began work on wing walls at the 101 Freeway Bridge, and placed new traffic signal conduits at the Price Road intersections, to prepare for street widening and demolition of the center of the 101 Bridge structure.
- The Contractor completed the south side of the Tempe Canal Bridge, and pavement, curb, and sidewalk for roadway widening in both the east and west approaches, to facilitate traffic switchover for construction of the north side of the bridge.
- The Contractor continued utility relocation work from the Tempe Canal Bridge, eastward toward Dobson Road in the City of Mesa.

## Cost and Schedule – Variance Analysis

- Planned progress is currently being evaluated as the master schedule revisions are being implemented.

## Issues and Solutions

- APS overhead to underground conversion delays from Mission Palms to Veteran’s Way, and significant archeological data recovery in Lot 55 and along Veterans’ Way, have impeded guideway and promenade work in the ASU area. Completing Veterans’ Way roadway prior to return of students, and the ASU Promenade prior to beginning of football season, remains a challenge. The contractor is pushing to complete work in areas as they open in order to meet these specific objectives.
- The placement of street light conduits along Apache Boulevard by APS and SRP-Power is delaying street widening efforts there. The contractor has altered its schedule to enable the utilities to complete that work expeditiously.
- The potential for other utility conflicts is being reviewed in conjunction with the contractor’s baseline schedule and three-week “look-aheads”. Resolution of utility issues is addressed weekly in the Line Section 5 Utilities Coordination meeting.
- The contractor has taken positive steps to assure positive public involvement, issuing notices to stakeholders regarding construction activities, and resolving stakeholder concerns as quickly as possible. SSWJV has continued to receive 100 percent of the Community Advisory Board incentive award.

## Construction Photos



Retaining Wall 5, Ash to First Street



Continuation of Work at Retaining Wall 1



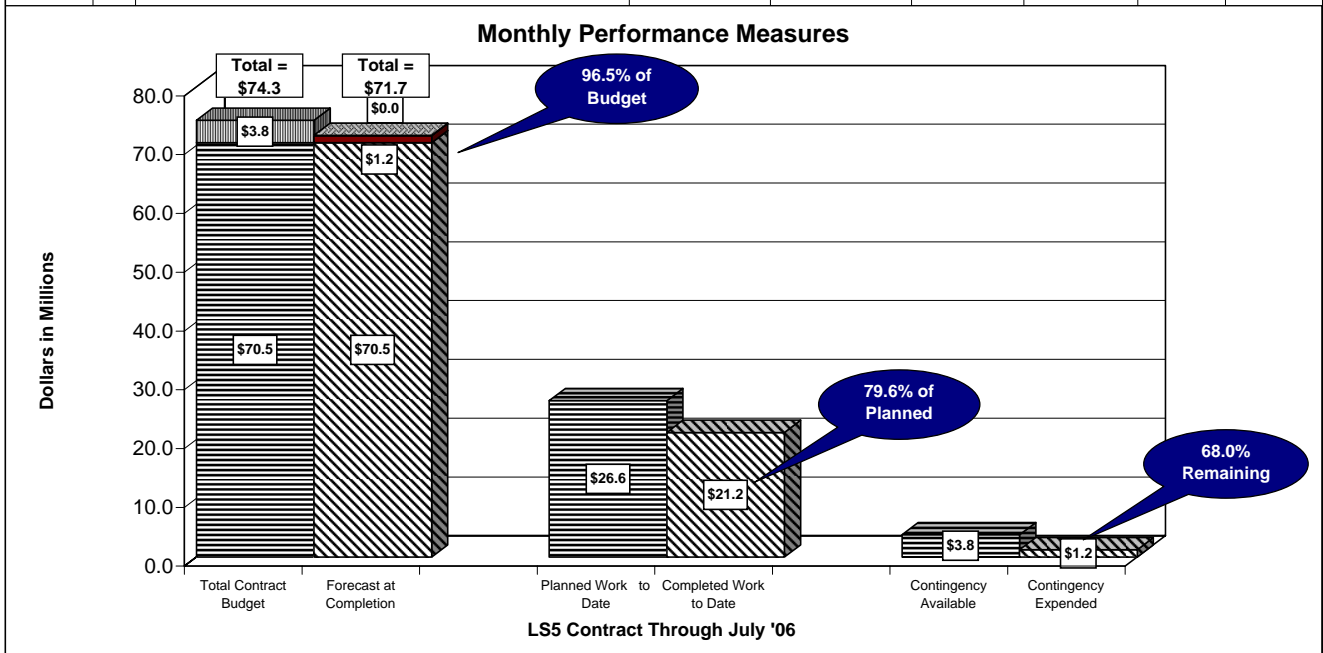
Roadway Work at Veterans' Way



Roadway Work at Tempe Canal Bridge



<b>Description:</b>		<b>3.1.5 Line Section 5</b>		
<b>PE/PA:</b>		<b>Brian Buchanan</b>		
<b>Contractor:</b>		<b>Sundt/Stacey Witbeck</b>		
<b>Resident Engineer:</b>		<b>Sam Graham</b>		
<b>Data Through:</b>		<b>July 15, 2006</b>		
	<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	\$742,002	\$482,716	\$1,224,718
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$69,624,971	\$2,056,033	\$71,681,004
5	Work Scheduled	\$25,825,814	\$811,648	\$26,637,462
6	Work Earned	\$20,890,841	\$305,948	\$21,196,789
7	Actual Expenditures	\$20,890,841	\$305,190	\$21,196,031
8	Forecast to Complete Base (4-7)	\$48,734,130	\$1,750,843	\$50,484,973
9	Change Orders Pending Execution	\$27,669	\$0	\$27,669
10	Forecast at Completion (7+8+9)	\$69,652,640	\$2,056,033	\$71,708,673
11	Percent Budget Expended (7/4)	10.8%	14.8%	29.6%
12	Percent Planned (5/4)	37.1%	39.5%	37.2%
13	Earned Percent Complete (6/4)	30.0%	14.9%	29.6%
14	Schedule Performance (6/5) (SPI)	0.81	0.00	0.80
15	Cost Performance (6/7) (CPI)	1.00	0.00	1.00
16	Contingency Budget	\$3,708,135	\$117,663	\$3,825,798
17	Remaining Contingency	\$2,966,133	\$117,663	\$2,601,080
18	Percent Contingency Remaining (17/16)	80.0%	100.0%	68.0%
	<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)	\$69,624,971	\$2,056,033	\$71,681,004
5	Work Scheduled (Cumm - Last Period)	\$4,528,833	\$693,911	\$5,222,744
6	Work Earned (Cumm - Last Period)	\$2,681,589	\$33,691	\$2,715,280
7	Actual Expenditures (Cumm - Last Period)	\$1,721,339	\$2,741	\$1,724,080
8	Forecast to Complete Base (4-7)	\$67,903,632	\$2,053,292	\$69,956,924
9	Change Orders Pending Execution	\$27,669	\$0	\$27,669
10	Forecast at Completion (7+8+9)	\$69,652,640	\$2,056,033	\$71,708,673
11	Percent Budget Expended (7/4)	2.5%	0.1%	2.4%
12	Percent Planned (5/4)	6.5%	33.7%	7.3%
13	Earned Percent Complete (6/4)	3.9%	1.6%	3.8%
14	Schedule Performance (6/5)	0.59	0.00	0.52
15	Cost Performance (6/7)	1.56	0.00	1.57
16	Contingency Budget			
17	Remaining Contingency			
18	Percent Contingency Remaining (17/16)			



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



### **Description**

The 48<sup>th</sup> 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 work on the utility bridge is substantially complete. All that remains is the installation of the protective bollards around the APS electrical pole and punch list items noted. The Contractor is addressing the remaining work when the trades become available. No work was done this month.

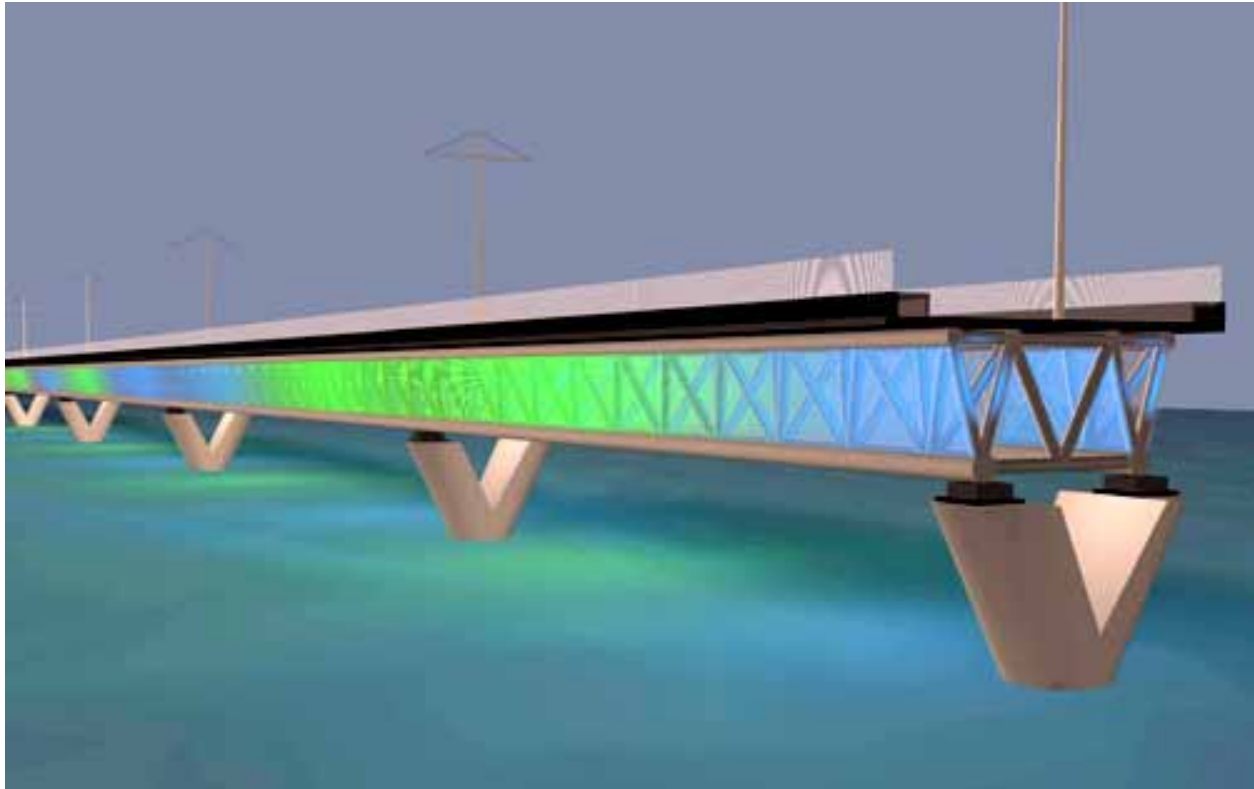
### **Cost and Schedule – Variance Analysis**

- 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 right and left track slabs, devil strip and emergency exit sidewalks for the south approach from the south abutment to just north of First Street been completed. Slope paving on the west side of the south approach has also been completed.
- The Installation of permanent aluminum and stainless steel wire rope handrail on the bridge deck and south approach was completed.

- The contractor began installing expanded metal panels (or scrim) on the outside of the trusses and began expansion joint sealant installation.
- Construction of the brick paver sidewalk and streetlight work on the west side of Rio Salado Parkway was completed.
- Production truss coating, applying one coat of epoxy over the primer, one coat of white and one coat of clear urethane was continued.
- The contractor continued installing power supply boxes, mounting hardware and LED luminaires for the special purpose lighting within the trusses.

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

- The performance indicators for both cost and schedule for this month are 1.01 for cost performance and 0.95 for schedule performance. The schedule performance is impacted by schedule re-sequencing, however as this contract is nearing completion, it is projected to finish on time.
- The June 2006 Schedule Update shows the projected finish date to be within the contract completion date. There are no major delay events forecasted on the project that could have a negative impact to the completion date of the schedule. Milestone B (Unimpeded trackway access by all follow-on contractors) was achieved early on July 20<sup>th</sup> 2006.

### **Issues and Solutions**

- The contractor continues to work overtime and weekends as needed in order to stay on schedule.

### **Construction Photographs**



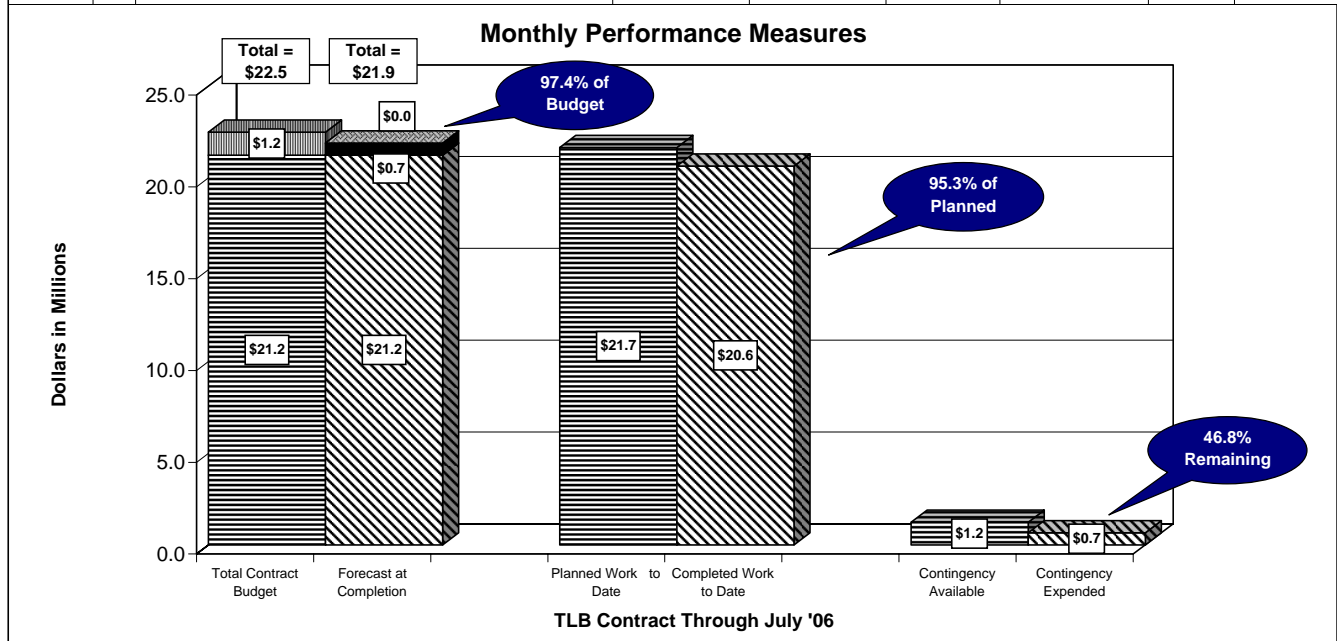
Electricians Installing Luminaires



Right Track Slab at South Approach



<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>June 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	\$844,713	\$0	\$844,713
3	Budget Transfers	-\$183,000	\$0	-\$183,000
4	Current Budget (1+2+3)	\$21,881,574	\$17,523	\$21,899,097
5	Work Scheduled	\$21,640,258	\$17,523	\$21,657,781
6	Work Earned	\$20,617,957	\$15,771	\$20,633,728
7	Actual Expenditures	\$20,477,449	\$15,771	\$20,493,220
8	Forecast to Complete Base (4-7)	\$1,404,125	\$1,752	\$1,405,877
9	Change Orders Pending Execution	\$3,000	\$0	\$3,000
10	Forecast at Completion (7+8+9)	\$21,884,574	\$17,523	\$21,902,097
11	Percent Budget Expended (7/4)	66.1%	90.0%	93.6%
12	Percent Planned (5/4)	98.9%	100.0%	98.9%
13	Earned Percent Complete (6/4)	94.2%	90.0%	94.2%
14	Schedule Performance (6/5)	0.95	0.00	0.95
15	Cost Performance (6/7)	1.0	1.0	1.0
16	Contingency Budget	\$1,242,400	\$1,402	\$1,243,802
17	Remaining Contingency	\$397,687	\$1,402	\$582,089
18	Percent Contingency Remaining (17/16)	32.0%	0.0%	46.8%
<b>Period</b>				
1	Budget	N/A	N/A	N/A
2	Executed Change Orders	\$163,819	\$0	\$163,819
3	Budget Transfers	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$21,881,574	\$17,523	\$21,899,097
5	Work Scheduled (Cumm - Last Period)	\$75,381	\$0	\$75,381
6	Work Earned (Cumm - Last Period)	\$876,836	\$0	\$876,836
7	Actual Expenditures (Cumm - Last Period)	\$682,583	\$0	\$682,583
8	Forecast to Complete Base (4-7)	\$21,198,991	\$17,523	\$21,216,514
9	Change Orders Pending Execution	(\$166,468)	\$0	(\$166,468)
10	Forecast at Completion (7+8+9)	\$21,715,106	\$0	\$21,715,106
11	Percent Budget Expended (7/4)	3.1%	0.0%	3.1%
12	Percent Planned (5/4)	0.3%	0.0%	0.3%
13	Earned Percent Complete (6/4)	4.0%	0.0%	4.0%
14	Schedule Performance (6/5)	11.63	#N/A	11.63
15	Cost Performance (6/7)	1.28	#N/A	1.28
16	Contingency Budget	\$1,242,400	\$0	\$1,242,400
17	Remaining Contingency	\$397,687	\$0	\$397,687
18	Percent Contingency Remaining (17/16)	32.0%	0.0%	32.0%



## Maintenance and Storage Facility



### Description

The Maintenance and Storage Facility (MSF) 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 MSF 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

- East of the yard lead track landscaping work is nearing completion along with the installation of chain link fence along the ADOT right-of-way.
- At the MOE building the gypsum wallboard installation and taping is nearing completion on the first and mezzanine level. Approximately 50 percent of drywall and taping has been completed on the 2nd floor. The floors in the first floor locker room and restrooms have been waterproofed.
- Ceramic wall tile is now being installed in the mezzanine restrooms. The Mechanical, electrical, plumbing and fire sprinkler rough-in work is also nearing completion in the shop areas. The electrician is pulling feeder wire and branch conduit wire. Installation



of the compressed air piping has begun. The three heating and ventilating units were installed this month. Turn table installation is ongoing. The LRV lift equipment is being placed. The assembly of the material lift is nearing completion. The ten ton bridge crane was delivered and installed. The installation of the exterior vertical wall panels is continuing along the east elevation of the building. The spray paint booth was delivered and assembly of the same has commenced. Painting of the walls and structural steel framing members on the first floor is ongoing. The installation of the aluminum window frames has begun.

- The single ply roof is substantially complete on the west, east, and north low roof locations and the second floor courtyard of the MOE building. The exterior metal wall panels are being installed along the east elevation. The entrance ramp to the mezzanine level has been placed with the handrail installations nearing completion. All of the concrete aprons and embedded track into the building have also been placed.
- In the MOE building basement the electrical work is continuing in the electrical distribution room. The raised computer flooring was installed in the communications room.
- Welding of track and special trackwork installation is nearing completion along with top ballast placement and regulating of the same. De-stressing of the installed rail is continuing.
- Installation of the irrigation system is ongoing throughout the work site. The concrete housekeeping pad for the SES equipment was poured as well as curbs in the MOW parking lot, a service pad in the MOW storage yard and sidewalk along the east side of the MOE building.
- At the MOW building metal studs installations as well as mechanical and plumbing rough-in work is nearing completion. The electrician is pulling branch and feeder wire. The extruded metal seam roof installation has begun and is progressing well.
- At the LRV Wash building CMU wall construction is complete. Plinths for the direct fixation track are now being formed and concrete placed. The roof insulation and membrane waterproofing work is about complete.
- The concrete work at yard service and cleaning platform is now complete.

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

- The Contractor's June 2006 schedule update forecasts substantial completion of the MOE building as October 19, 2006 by providing temporary power for test and commissioning. The plan would mitigate impacts to energizing transformers and panels due to the anticipated fabrication and delivery of the Service Entry Section (SES) scheduled for late September 2006. Final contract completion remains forecasted for January 22, 2007.

- The latest project schedule update indicates 78.8 percent of the work is complete. Planned progress is currently being evaluated as the master schedule revisions are being implemented.

### Construction Photographs



View of the MOW building from the southwest



Setting HVAC equipment on MOE lower roof



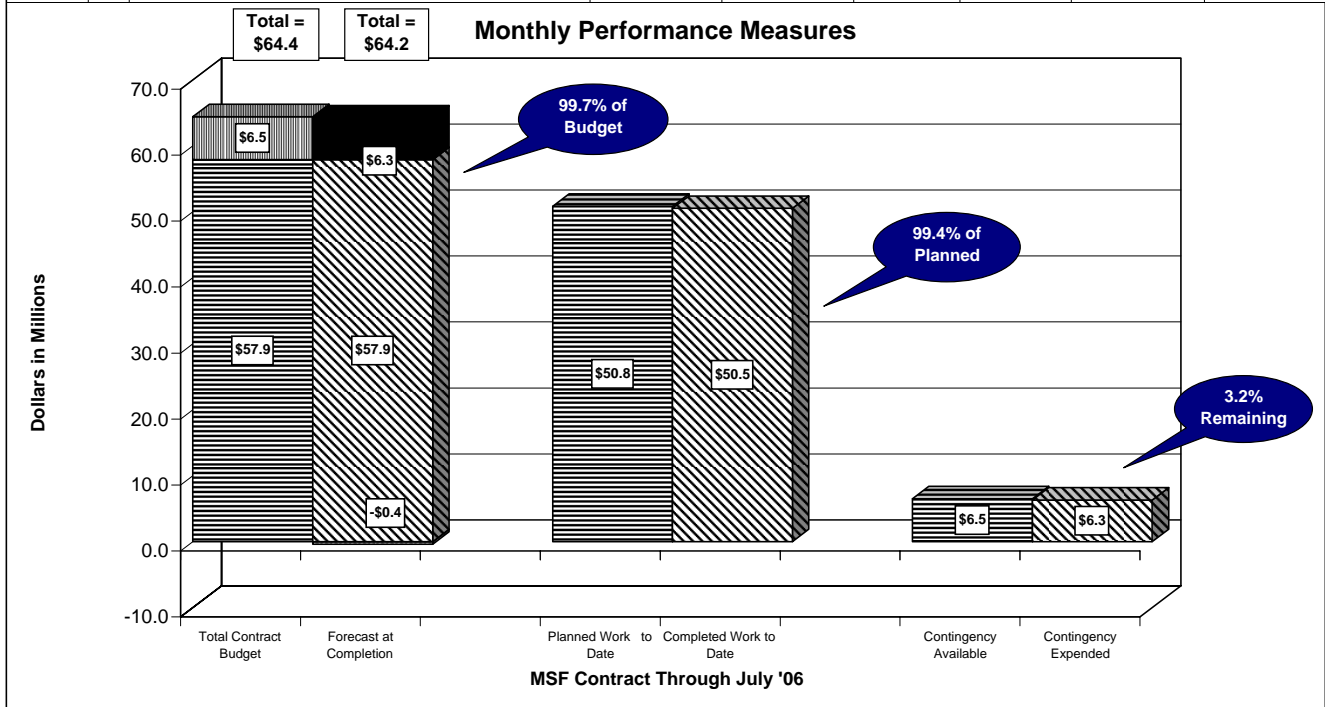
View of the LRV building from northeast



Service and cleaning platform looking west



<b>Description:</b>		<b>3.5.1 Maintenance Support Facility</b>		
<b>PE/PA:</b>		<b>Avrum Loewenstein</b>		
<b>Contractor:</b>		<b>Sundt/Stacy Witbeck</b>		
<b>Resident Engineer:</b>		<b>Frank Aber</b>		
<b>Data Through:</b>		<b>June 30, 2006</b>		
<b>Cumulative</b>		<b>5309</b>	<b>CNPA</b>	<b>Total</b>
1 Budget		\$57,637,721	\$274,299	\$57,912,020
2 Executed Change Orders		\$6,437,622	\$0	\$6,437,622
3 Budget Transfers		-\$257,984	\$0	-\$257,984
4 Current Budget (1+2+3)		\$63,817,359	\$274,299	\$64,091,658
5 Work Scheduled		\$50,563,666	\$274,299	\$50,837,965
6 Work Earned		\$50,284,546	\$238,723	\$50,523,269
7 Actual Expenditures		\$50,815,725	\$238,381	\$51,054,106
8 Forecast to Complete Base (4-7)		\$13,001,634	\$35,918	\$13,037,552
9 Change Orders Pending Execution		-\$391,892	\$0	-\$391,892
10 Forecast at Completion (7+8+9)		\$63,425,467	\$274,299	\$63,699,766
11 Percent Budget Expended (7/4)		79.6%	86.9%	79.7%
12 Percent Planned (5/4)		79.2%	100.0%	79.3%
13 Earned Percent Complete (6/4)		78.8%	87.0%	78.8%
14 Schedule Performance (6/5)		0.99	0.87	0.99
15 Cost Performance (6/7)		0.99	1.00	0.99
16 Contingency Budget		\$6,513,772	\$0	\$6,513,772
17 Remaining Contingency		\$210,058	\$0	\$210,058
18 Percent Contingency Remaining (17/16)		3.2%	0.0%	3.2%
<b>Period</b>				
1 Budget		N/A	N/A	N/A
2 Executed Change Orders		\$274,299	\$0	\$274,299
3 Budget Transfers		\$0	\$0	\$0
4 Current Budget (1+2+3)		\$50,563,666	\$274,299	\$50,837,965
5 Work Scheduled (Cumm - Last Period)		\$3,135,367	\$0	\$3,135,367
6 Work Earned (Cumm - Last Period)		\$2,428,071	\$244	\$2,428,315
7 Actual Expenditures (Cumm - Last Period)		\$2,615,371	\$0	\$2,615,371
8 Forecast to Complete Base (4-7)		\$47,948,295	\$274,299	\$48,222,594
9 Change Orders Pending Execution		-\$513,822	\$0	-\$513,822
10 Forecast at Completion (7+8+9)		\$50,049,844	\$274,299	\$50,324,143
11 Percent Budget Expended (7/4)		5.2%	0.0%	5.1%
12 Percent Planned (5/4)		6.2%	0.0%	N/A
13 Earned Percent Complete (6/4)		4.8%	0.0%	N/A
14 Schedule Performance (6/5)		0.77	N/A	0.77
15 Cost Performance (6/7)		0.93	N/A	0.93
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. Approximately 3,600 spaces are to be 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 and Main Street. The lots are adjacent to Transit Centers at 19th Street and Montebello, Central and Camelback and Sycamore and Main Street.

The Surface Parking Lots 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 19th Avenue and Montebello site is at 100 percent design completion by the primary sub-consultant. 100 percent consolidation of plans is in process by the GEC.
- The 19th Avenue and Camelback site is at 100 percent design completion by the primary sub-consultant. 100 percent consolidation of plans is in process by the GEC.



- The Central Avenue and Camelback PNR change order for redesign is underway. A pre-application site plan meeting with Development Services is being scheduled and an On-Board submittal is anticipated in August 2006. It is anticipated that the new design will be complete and approved in time to include in the total PNR bid package in April 2007.
- The Dorsey and Apache PNR has been designed by the City of Tempe as a maintenance upgrade only.
- The 38th Street and Washington Street PNR site has reached the 100 percent design completion by the primary sub-consultant. A final draft for the IGA between Gateway Community College and the City of Phoenix has been settled. 100 percent consolidation of plans is in process by the GEC.
- The McClintock and Apache PNR site has reached the 100 percent design completion by the primary sub-consultant. 100 percent consolidation of plans is in process by the GEC.
- The Loop 101 and Apache PNR site has reached the 100 percent design completion by the primary sub-consultant. 100 percent consolidation of plans is in process by the GEC.
- The Sycamore and Main PNR site has reached the 100 percent design completion by the primary sub-consultant. 100 percent consolidation of plans is in process by the GEC.

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

- The budget for all sites is \$15,104,339 with a contingency of \$1,208,300.
- A December 2005 construction estimate and projections indicate a base cost (without soft costs) of \$21,000,000. This cost does not include shade canopies. This cost is included in the project budget forecast and can be funded within the overall project budget.
- With the Central and Camelback site included, a bid date is scheduled for April 2007 with construction completion of all sites by December 2008. Construction completion of some sites is necessarily delayed by their use as construction yards for the Line Section contractors.

### **Issues and Solutions**

- None

## 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 MSF and direct fixation fasteners for the MSF, 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 MSF.
- T Rail – rail for the MSF, TLB including approaches and Deck Park Bridge.

### Progress

- Girder Rail
  - The Contractor is approximately 98 percent complete. The Contractor did not make any material deliveries during this month.
- Embedded Special Trackwork
  - The Contractor continues to produce crossover and turnout castings for this contract. During this month the rail team made an inspection trip to Seattle Washington to



check on the Contractor's progress and to inspect two 50 meter turnouts for Line Section 3. If the layout is approved and the contractor will deliver the turnouts the last week in July 2006.

The Contractor has also elected to open an additional assembly plant in Birmingham Alabama so that they can speed up the delivery of these components.

- Our next inspection trip is scheduled for mid August 2006.

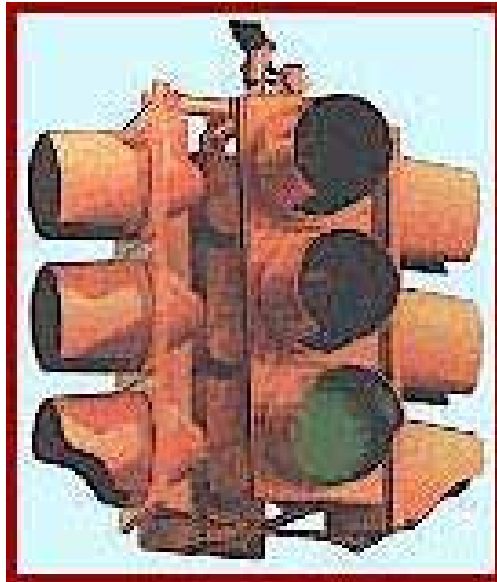
### **Cost and Schedule – Variance Analysis**

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

### **Issues and Solutions**

- There are no significant issues at this time.

## 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' staging areas.

### Cost and Schedule – Variance Analysis

- Traffic signal procurement activities have been completed.
- A table showing the status of costs incurred to-date versus budget is shown on the next page.

Description	Contract/Budget Amount	Payments to Date
COP Traffic System Upgrades	\$ 958,862.00	\$ 596,957.60
COT Traffic System Upgrades	\$ 344,097.00	\$ 189,612.00
Traffic Signal Controller/Cabinets	\$ 2,711,527.00	\$2,516,973.82
LS 1 Traffic Signal Poles/Mast Arms (PO is completed)	\$ 209,144.33	\$ 204,961.42
LS 2 Traffic Signal Poles/Mast Arms (PO is completed)	\$ 309,685.98	\$ 304,479.32
LS 3 Traffic Signal Poles/Mast Arms (PO is completed)	\$ 1,369,268.37	\$ 1,241,739.95
LS 4 Traffic Signal Poles/Mast Arms (Phoenix) (PO is completed)	\$ 369,069.21	\$ 365,378.49
LS 4 Traffic Signal Poles/Mast Arms (Tempe) (PO is completed)	\$ 337,883.37	\$ 336,248.15
LS 5 Traffic Signal Poles/Mast Arms (Tempe)	\$ 942,013.10	\$ 840,942.23

**Issues and Solutions**

- Blank out Panels (Line Section LS5) - On July 20, 2006 the Contractor delivered the remaining blank out panels for this purchase order.

**Delivery Photos**



Refinished LS5 Traffic Signal Blank Out Panels Stored at the LS5 Apache Blvd Storage Yard



Traffic Signal Poles being assembled at the LS5 Apache Blvd Storage Yard

## 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 MSF 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

- Simmons Machine Tool Corporation continues to work on its submittals, procurement of materials and manufacturing of the equipment components.

### 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

- Submittals review comments have been provided to the Contractor including Management Plan, Preliminary Master Program Schedule and Contract CDRL List.
- Contractor currently in the Conceptual Design Phase.

#### Cost and Schedule – Variance Analysis

- Fare collection system activities remain on schedule and within budget at this time.

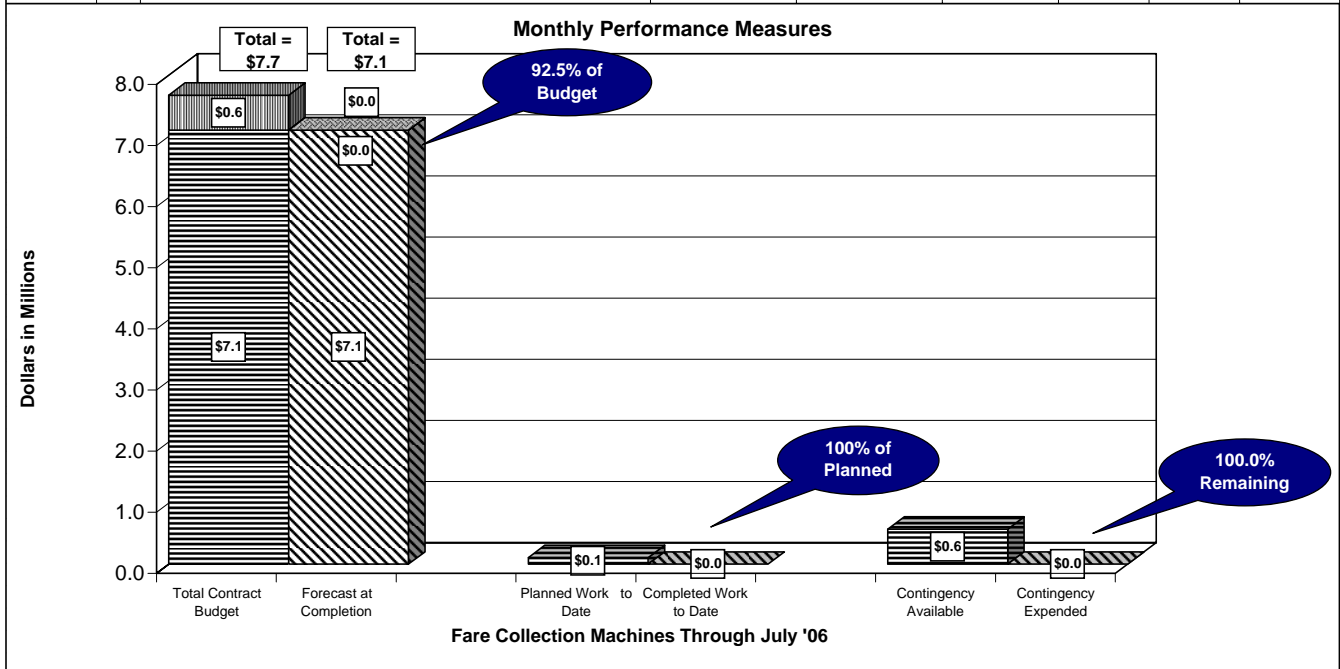


## Issues and Solutions

- COP Public Transit Department and METRO received Contractor's Proposal to combine Fare Collection Data Central Processing in one single office. Proposal is in review by METRO and COP PTD/ITD.
- Contract requirements for the Contractor's Quality Assurance Program Plan are currently being reviewed for potential revisions.



<b>Description:</b>		<b>Fare Collection Machines</b>
<b>PE/PA:</b>		<b>Arkady Bernshtryn</b>
<b>Contractor:</b>		<b>Anticipated NTP</b>
<b>Resident Engineer:</b>		<b>May 1, 2006</b>
<b>Data Through:</b>		<b>June 2006</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	\$105,860
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)	1.5%
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)	\$105,860
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)	1.5%
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 thirty-six 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.
- METRO held Design Review Meeting No. 22 with KI on June 15, 2006. The main topics for presentation by KI and discussion were: Bumper side panel application; truck FAI;



closing open items; bumper fit; master control review on mockup; climate room schedule; and vehicle delivery schedule.

- METRO/KI dialogue continues regarding vehicle final assembly in Arizona.
- Changes for an Overhead Catenary System (OCS) Surveillance Camera Installation on two cars and an Automatic Passenger Counting System (APC) for the fleet are being 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 2006:

- LRV Mass Production – 20 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 reinspection.
- KS-J completed the 14 underframe bolsters and has set up the end frame underframe jig for mass-production. The end underframe for car 103A was produced and removed from the jig, and KS-J performed weld finishing work. The first 14 underframes for car 103 - 114 have been welded and inspected, and NDT for 103A and C have been completed. Underframes have been grit blasted and primer has been applied.
- Carbody – water tests were performed on Cars 101 - 107. Some open items remain. Sound deadener has been applied. Installation of the insulation is now in process. In car 102A, installation of the main duct and ceiling panels as well as the cab partition wall is complete. Installation of window masks is in process. In cars 103 to 105 installation of the main duct and ceiling panels is in process. In car 103 to 105 installation of interior wiring and duct is in process. 102 is scheduled for climate testing August 21 – September 7, 2006.
- Concealment inspections were witnessed in two stages each for cars 101 and 105. All noted defects were repaired. No defects remain.
- KS-J has made parts adjustments to all the A and B prototype cars at the cab front mask around the front destination sign opening. This allowed KS-J to install the front windshield and destination sign window.
- KS-J advised that a new rubber seal will be installed on the front headlights to improve the water tightness.

## 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

## Construction Photographs



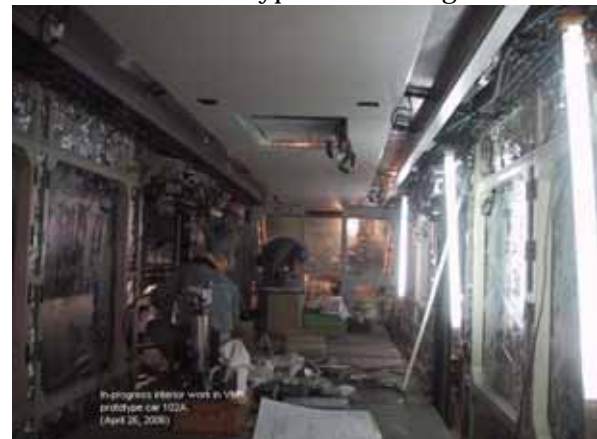
Installation of HVAC unit on roof of METRO prototype car 102A on April 10.



Horizontal curve carbody clearance test for articulation. Prototype car 101, August 1, 2006



In-progress roof wiring and piping on METRO prototype car.



In progress interior work in METRO Prototype car 102.



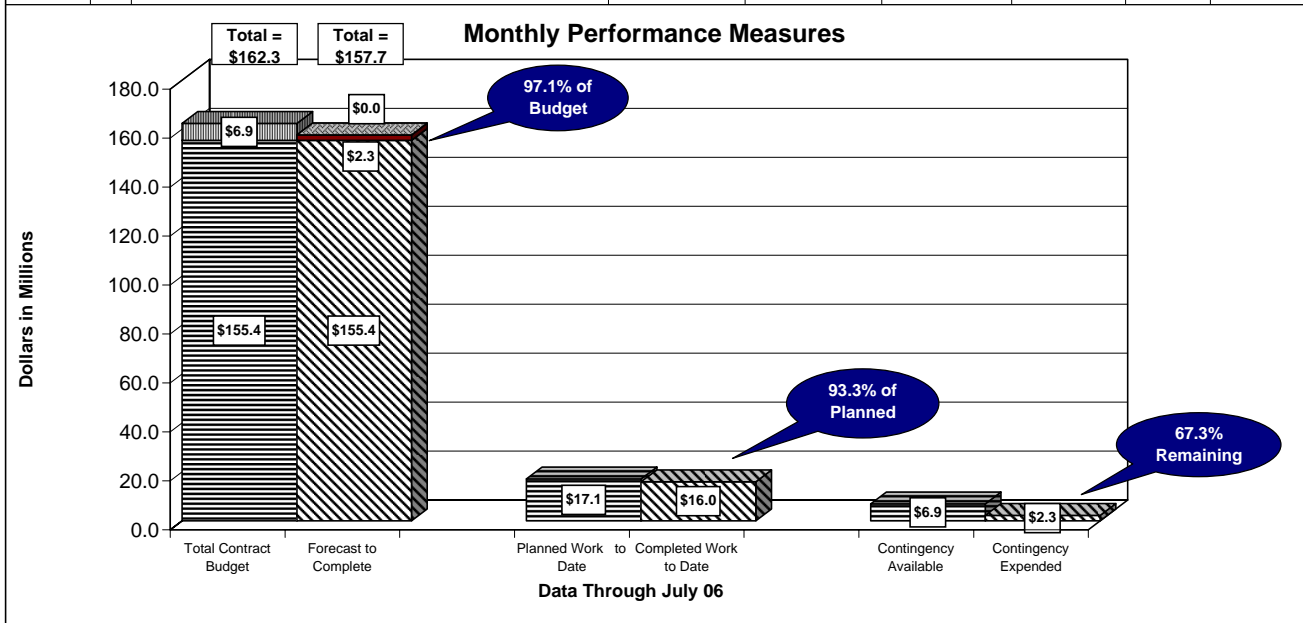
Prototype Car 101C after paint inspection on June 29, 2006.



Carbody clearance test. Prototype car 101, August 1, 2006.



<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>June 13, 2006</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	\$0	\$0	\$0
4	Current Budget (1+2+3)	\$117,625,456	\$40,050,160	\$77,575,296
5	Work Scheduled	\$17,095,326	\$0	\$17,095,326
6	Work Earned	\$15,952,105	\$0	\$15,952,105
7	Actual Expenditures	\$15,990,522	\$0	\$15,990,522
8	Forecast to Complete Base (4-7)	\$101,634,934	\$40,050,160	\$61,584,774
9	Change Orders Pending Execution	\$0	\$0	\$0
10	Forecast at Completion (7+8+9)	\$117,625,456	\$40,050,160	\$77,575,296
11	Percent Budget Expended (7/4)	13.6%	0.0%	20.6%
12	Percent Planned (5/4)	14.5%	0.0%	22.0%
13	Earned Percent Complete (6/4)	13.6%	0.0%	20.6%
14	Schedule Performance (6/5)	0.93	N/A	0.93
15	Cost Performance (6/7)	1.00	N/A	1.00
16	Contingency Budget	\$4,768,489	\$2,135,840	\$6,904,329
17	Remaining Contingency	\$2,512,813	\$2,135,840	\$4,648,653
18	Percent Contingency Remaining (17/16)	52.7%	100.0%	67.3%
<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)	\$117,625,456	\$40,050,160	\$157,675,616
5	Work Scheduled (Cumm - Last Period)	\$248,596	\$0	\$248,596
6	Work Earned (Cumm - Last Period)	\$1,634,077	\$0	\$1,634,077
7	Actual Expenditures (Cumm - Last Period)	\$1,654,260	\$0	\$1,654,260
8	Forecast to Complete Base (4-7)	\$115,971,196	\$40,050,160	\$156,021,356
9	Pending Changes	\$0	\$0	\$0
10	Forecast at Completion (7+8+9)	\$117,625,456	\$40,050,160	\$157,675,616
11	Percent Budget Expended (7/4)	1.4%	0.0%	2.1%
12	Percent Planned (5/4)	14.5%	0.0%	22.0%
13	Earned Percent Complete (6/4)	14.5%	0.0%	22.0%
14	Schedule Performance (6/5)	1.00	N/A	6.57
15	Cost Performance (6/7)	1.00	N/A	0.99
16	Contingency Budget	\$4,768,489	\$2,135,840	\$6,904,329
17	Remaining Contingency	\$2,512,813	\$2,135,840	\$4,648,653
18	Percent Contingency Remaining (17/16)	52.7%	100.0%	67.3%



## 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 (MSF), 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
  - Contractor is beginning excavation for ground grid system and ductbank at Signal Building No. 6.
  - Contractor is continuing mechanical and electrical installation at Signal Building No. 5.
  - No construction activity at Signal Building No. 4.
  - Contractor continuing construction at Signal Building No. 3. Completed CMU block wall and roof deck installation. Currently installing roofing system and interior wall system.
- Signaling System
  - Contractor is currently pulling signal cable for the yard powered switch machines.
  - Contractor is beginning installation of signaling system equipment for MSF Yard at Signal Building No. 5.
- Communications System
  - Contractor currently performing Final Design for Communication System.
- OCC Build Out
  - Contractor is continuing installation of mechanical ductwork and refrigerant piping. Performed radar sounding for potential core drill locations where x-raying was not possible.
- Coordinating with Other Contracts
  - Master Schedule Update. Contractor performing impact analysis and mitigation plan to support revised facilities access dates
  - Continuing coordination with LS4 Contractor for the Yard Entrance Area to support installation of power and signal rail connections and earth boxes.
  - MSF Contractor provided mandrel logs for communication system ductbank turnover. S&C Contractor in turn provided list of punchlist items resulting from the turnover walkthrough.

### Cost and Schedule – Variance Analysis

- The contractor has completed 19.3 percent of the work to-date. 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 four signal buildings, some architectural work at the OCC, some track bonding at MSF and installation of powered switch machines at MSF. Planned progress is currently being evaluated as the master schedule revisions are being implemented.

### Issues and Solutions

- Signal Building No. 1 Building Permit - DSD revision of documents to incorporate DSD comments and submission to DSD is being expedited to provide Contractor continued civil building work.

### Construction Photographs



SB No. 3 - Installation of Roof Decking



SB No. 5 - Installation of Signal Equipment



SB No. 6 - Preparing Site for Ground Grid



OCC - Continuing Mechanical Installation



MSF Yard - Pulling Signal Cable

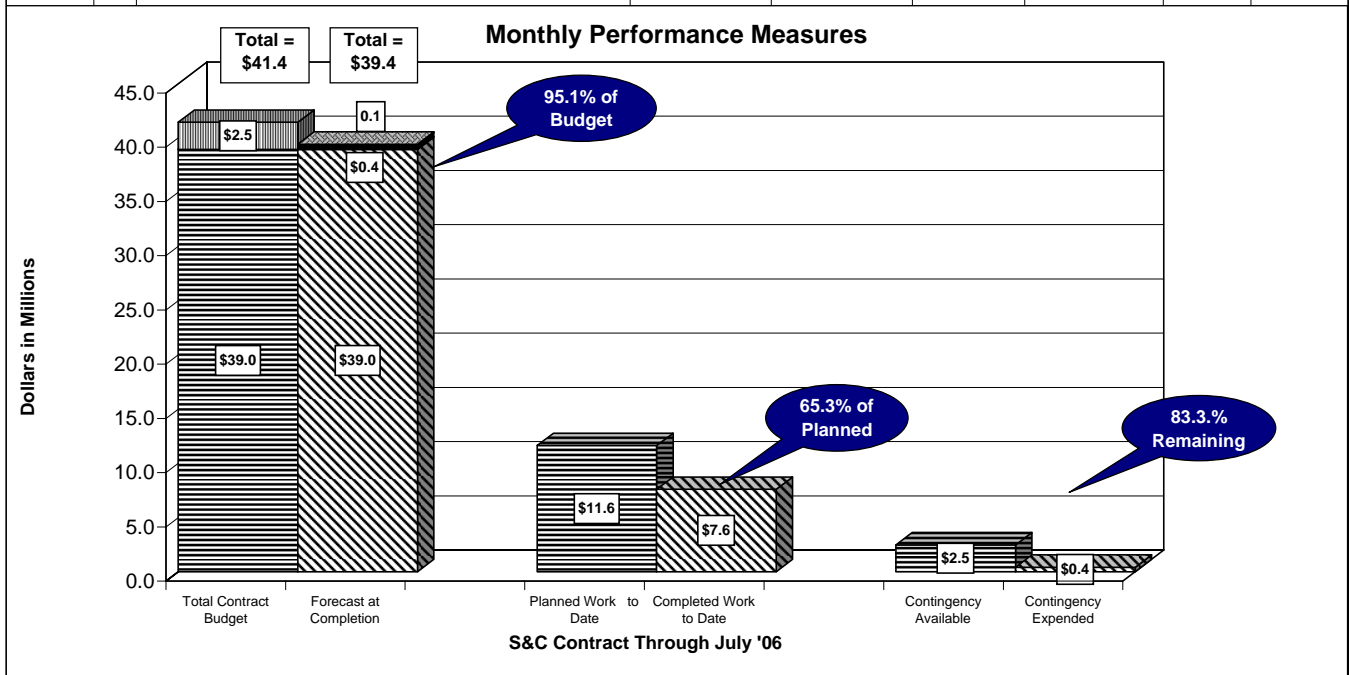


MSF Yard - Wiring Switch Machine  
Terminations



<b>Description:</b>		<b>3.7.4 Signals &amp; Communications</b>		
<b>PE/PA:</b>		<b>Leslee O' Connell</b>		
<b>Contractor:</b>		<b>Mass Electric</b>		
<b>Resident Engineer:</b>		<b>Steve Kyauk</b>		
<b>Data Through:</b>		<b>June 15, 2006</b>		
	<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	\$494,052	\$0	\$494,052
3	Budget Transfers	-\$80,332	\$0	-\$80,332
4	Current Budget (1+2+3)	\$37,890,482	\$1,480,805	\$39,371,287
5	Work Scheduled	\$11,544,493	\$99,933	\$11,644,426
6	Work Earned	\$7,569,844	\$30,028	\$7,599,872
7	Actual Expenditures	\$7,587,072	\$20,000	\$7,607,072
8	Forecast to Complete Base (4-7)	\$30,303,410	\$1,460,805	\$31,764,215
9	Change Orders Pending Execution	\$50,000	\$0	\$50,000
10	Forecast at Completion (7+8+9)	\$37,940,482	\$1,480,805	\$39,421,287
11	Percent Budget Expended (7/4)	20.0%	1.4%	19.3%
12	Percent Planned (5/4)	30.5%	6.7%	29.6%
13	Earned Percent Complete (6/4)	20.0%	2.0%	19.3%
14	Schedule Performance (6/5)	0.66	0.30	0.65
15	Cost Performance (6/7)	1.00	1.50	1.00
16	Contingency Budget	\$2,388,332	\$93,913	\$2,482,245
17	Remaining Contingency	\$1,894,280	\$93,913	\$2,068,525
18	Percent Contingency Remaining (17/16)	79.3%	100.0%	83.3%
	<b>Period</b>			
1	Original Budget			
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)			

N/A -  
No Update was received during current period



## 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 No. 1
  - Parapet framing installation activities have been completed. Stucco applications have commenced.
  - Dielectric floor application has been completed.



- Electrical rough-in activities have commenced.
- Traction Power Substation No. 2
  - CMU wall installation nearly complete.
- Traction Power Substation No. 3
  - Excavation of ductbanks progressed.
- Traction Power Substation No. 5
  - Floor slab has been placed.
  - Initial courses of CMU blocks along the north radius wall have been placed.
- Traction Power Substation No. 6
  - Dielectric floor has been completed.
  - Metal stud framing installation for the interior walls has commenced.
  - Electrical rough-in has begun.
- Traction Power Substation No. 7
  - Installation of HVAC equipment pads has begun.
  - Floor slab has been placed.
- Traction Power Substation No. 8
  - Insulation and metal panel installation has continued.
  - HVAC equipment has been set. HVAC ductwork and refrigerant line installation has begun.
  - Cable tray installation has begun.
- Traction Power Substation No. 9
  - Cable tray installation has begun.
  - Door hardware installations have begun.
- Traction Power Substation No. 10
  - Excavation for the ground grid has begun.



- Traction Power Substation No. 11
  - Initial clearing and grubbing has begun.
- Traction Power Substation No. 15
  - Metal paneling installation is nearly complete.
  - HVAC units have been delivered to site and installation of the ductwork has begun.
- Overhead Contact System
  - OCS Pole installations in the MSF Yard continue to progress.
  - OCS Headspan installations continue to progress.
  - Pole mounted disconnect switch installation has begun.
- Site Access/Permits
  - The building permits for TPSS No. 3 and No. 10 were issued to the TES Contractor. The building permits for TPSS No. 4 and No. 11 are available for pickup by the TES Contractor.
  - TPSS No. 12 (McClintock Park-and-Ride) has utility impacts which require remediation to allow the TPSS building to be constructed and an existing wall needs to be demolished to provide access to the building site. The City of Tempe has turned this site over to a private developer which will likely require changes to the grading and drainage plans unless the on-site retention requirement is waived.
- Coordination with other Contracts/Entities
  - Ongoing coordination meetings are being held with the Facility Contractors.

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

- The contractor has completed 24.8 percent of their work to-date. The contract is in the final stages of design and procurement with some factory design and productions tests in progress. Field construction to date has included the civil and architectural parts of nine out of the sixteen traction power substations and some OCS components installation in the north yard at MSF. Planned progress is currently being evaluated as the master schedule revisions are being implemented.

## Issues and Solutions

- Various access dates are projected to be delayed as a result of postponed Civil Contract milestone dates. MEC has been given the updated projected Civil Contract milestone dates and are re-sequencing their schedule accordingly.

## Construction Photographs



**Cable Trays at TPSS No. 9**



**Initial Clearing and Grubbing at TPSS No. 11**



**Installation of OCS Poles – North MSF Yard**



**Slab Placed at TPSS No. 7**



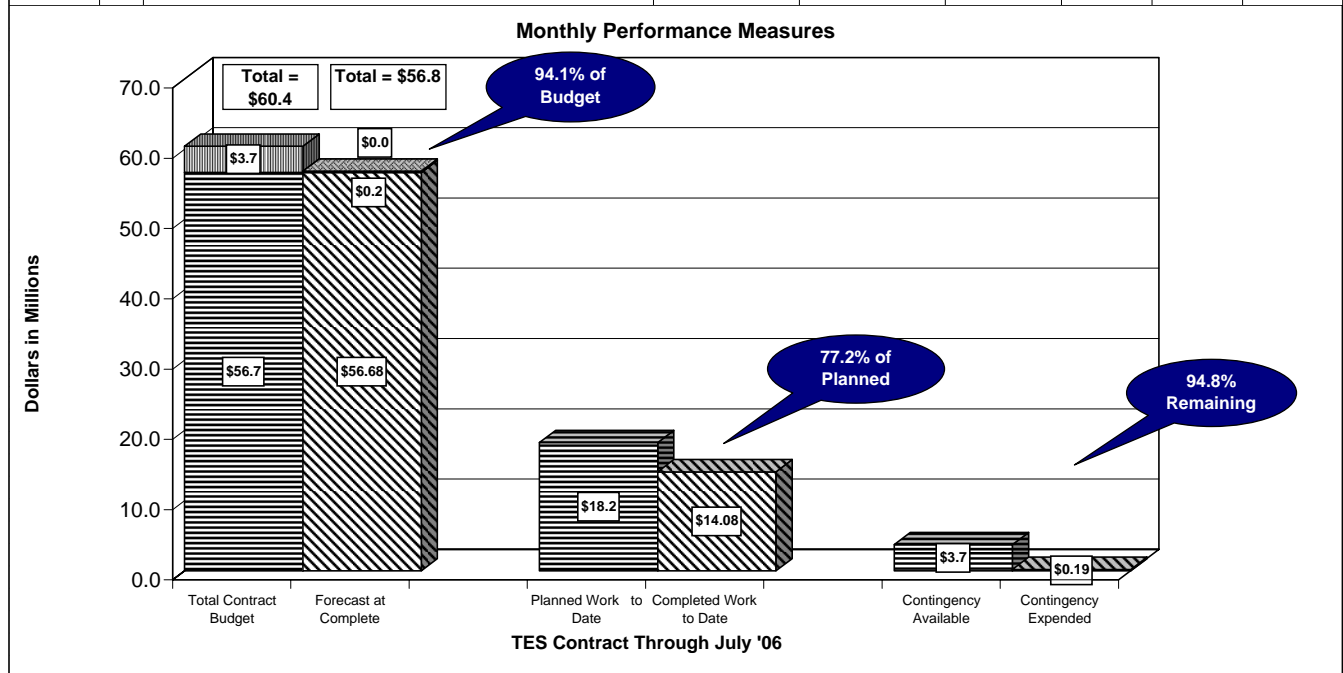
**Placement of Slab at TPSS No. 5**

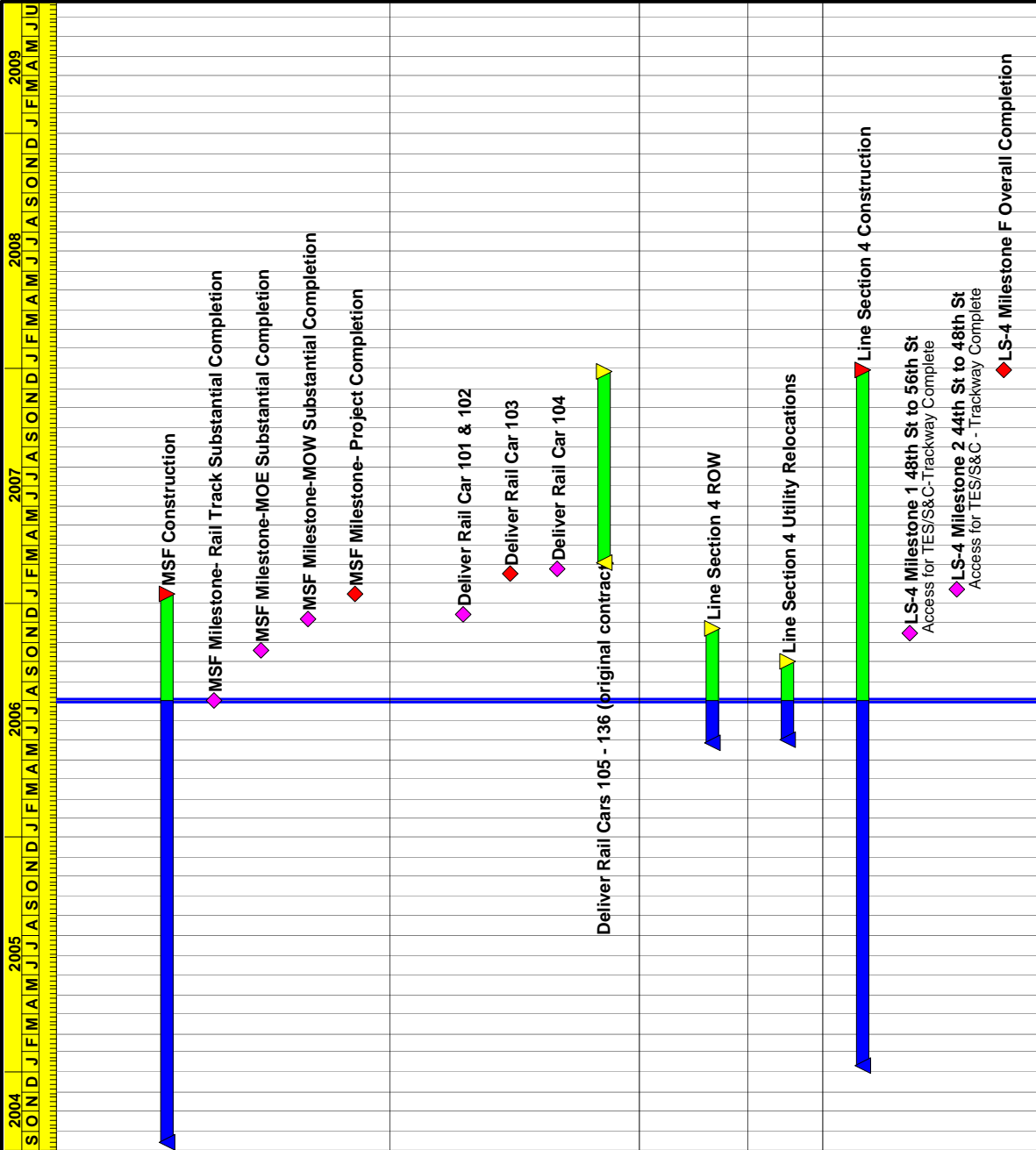


**Installation of Pole Bands - North MSF Yard**



<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>June 15, 2006</b>
Cumulative		<b>5309</b>
1	Budget	\$56,681,003
2	Executed Change Orders	\$190,342
3	Budget Transfers	\$0
4	Current Budget (1+2+3)	\$56,871,345
5	Work Scheduled	\$18,249,772
6	Work Earned	\$14,078,644
7	Actual Expenditures	\$14,027,264
8	Forecast to Complete Base (4-7)	\$42,844,081
9	Change Orders Pending Execution	\$0
10	Forecast at Completion (7+8+9)	\$56,871,345
11	Percent Budget Expended (7/4)	24.7%
12	Percent Planned (5/4)	32.1%
13	Earned Percent Complete (6/4)	24.8%
14	Schedule Performance (6/5)	0.77
15	Cost Performance (6/7)	1.00
16	Contingency Budget	\$3,721,000
17	Remaining Contingency	\$3,530,658
18	Percent Contingency Remaining (17/16)	94.88%
Period		
1	Budget	N/A - No Update was received during current period
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)	





Activity ID	Duration	Current Start	Current Finish
<b>Maintenance &amp; Storage Facility</b>			
MSF_1	854*	14SEP04A	15JAN07
MSF_5	0		31JUL06*
MSF_2	0		19OCT06*
MSF_3	0		06DEC06*
MSF_6	0		15JAN07
<b>Light Rail Vehicles</b>			
CAR_1	0		14DEC06*
CAR_2	0		15FEB07*
CAR_3	0		23FEB07*
CAR_4	298*	05MAR07*	27DEC07
<b>Line Section 4</b>			
<b>Right of Way</b>			
LS4_HAM22	176*	29MA Y06A	20NOV06
<b>Utilities</b>			
LS4_HAM23	123*	01JUN06A	01OCT06
LS4_3	1,083*	11JAN05A	29DEC07
LS4_4	0		15NOV06*
LS4_5	0		21JAN07*
LS4_1	0		29DEC07

Start Date: 01AUG04  
 Finish Date: 26DEC08  
 Data Date: 01AUG06  
 Run Date: 07AUG06 12:58

6007

Sheet 1 of 10

**Presentation Schedule**

**METRO Rail Program Control**  
**Central Phoenix/East Valley LRT Project**  
**Revised Master**

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## Nonconformance Report Logs

### Contract: GEC Design Support During Construction

NCR/QAR No	NCR/QAR Subject	Date Open	Date Closed	Planned Resolution	Remarks
GEC QAR 06-001-01	Station Finishes Conformed Drawings & Specifications	2/3/06		Corrections of several, isolated discrepancies will be completed by 08/30/06.	This QAR has had no progress for several months. Auditor to contact GEC Project Manager.
GEC QAR 06-002-01	GEC Design Changes	6/23/06	7/12/06		

### Contract: Maintenance and Storage Facility

NCR/QAR No	Subject	Date Open	Date Closed	Planned Resolution	Remarks
006	Retaining Walls and ADOT Box Culvert are missing Weep Holes. The geo-composite drain is improperly installed, etc.	4/28/05		Contractor has not responded. Was discussed in weekly progress meeting. <b>Contractor will not be paid for the work until resolution of NCR.</b>	Contractor has completed the coring of the weepholes and is in process of completing minor details for completion. Estimated closure of NCR 7/1/06
014	Hand Rail on MSE wall and YL Bridge does not meet specification finish requirements	8/19/05	<b>CLOSED 7/5/06</b>		
024	OCS FTF-B Feeder Foundation – Spare conduit placement	1/17/06	<b>CLOSED 7/7/06</b>		
030	Shop Priming	3/01/06		Response received.	Erector rework to be complete by 8/30/06
035	Wrong dimensions for MOE Mezzanine Platform stairs	3/23/06			Repairs to be completed buy 8/15/06
036	Tree Size	5/25/06		Contractor response unacceptable.	Resolution due 8/15/06. Use-as-Is with compensation



037	Damage Manual Switch Stand	6/05/06		Contractor response unacceptable.	NCR response to be resolved by 8/30/06
039	Structural Steel Field "Touch Up" Painting.	6/07/06			Work is in progress. Estimated completion 8/30/06
040	Grounding not completed per C/N 14 at MOE Building	7/20/06			

**Contract: Line Section 1**

NCR/QAR No	Subject	Date Open	Date Closed	Planned Resolution	Remarks
003	Fire Hydrant Bonding	4/20/06		RFI 140 has been submitted for review.	Test Reports are required to be submitted. Estimated resolution 8/15/06
004	Restraining straps not installed per details	5/31/06		Response received. Sent to GEC 6/27/06 for concurrence.	RFI was submitted. GEC to respond by 8/15/06
005	Coupler installed was not bonded	5/31/06		Response received. Sent to GEC 6/27/06 for concurrence	GEC is preparing response. Estimated date of response 8/15/06

**Contract: Line Section 2**

NCR/QAR No	Subject	Date Open	Date Closed	Planned Resolution	Remarks
002	Design pattern and finish on concrete for handicap ramp is incorrect and does not meet specification	12/6/05		Rework has been completed.	Awaiting COP concurrence on rework. Estimated closure 8/18/06
004	Sidewalk Ramp	1/11/06		Response received. Herzog to repair.	Awaiting COP concurrence on rework. Estimated closure 8/18/06
005	Sidewalk Ramp	1/11/06		Response received. Herzog to perform repair.	Awaiting COP concurrence on rework. Estimated closure 8/18/06



006	Sidewalk Ramp	1/11/06		Response received. Herzog to perform repair	Estimated completion 8/18/06
007	Sidewalk Ramp Detail C	1/11/06		Response received. Herzog to perform repair.	Estimated completion 8/18/06.
008	Curb and Gutter not to MAG Std. Dtl. 220 Type A	1/16/06		Response received. Herzog to perform repair.	Estimated completion 8/18/06.
009	Cracks on the raised retaining wall	4/24/06		No response to date.	RE to request response by 8/15/06
010	Sidewalk not sloped to correct direction	6/02/06	<b>CLOSED 6/30/06</b>		
011	Flow-thru Guideway Curb Steel Fabrication	6/12/06		RFI was submitted and rejected.	RFI to be revised and resubmitted. Estimated closure 8/25/06
012	Concrete mix design number used to pour collar on Manhole No. 6 not approved	6/13/06	<b>CLOSED 6/23/06</b>		
013	9.5 Full Depth Asphalt Concrete Pavement failed gradation test.	6/30/06		No response to date by Contractor	
014	AC Mix Design not approved	7/20/06			
015	Concrete Mix Design	7/26/06			
016	Unapproved concrete mix design – duct bank encasement.	7/31/06			

**Contract: Line Section 3**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
011	Pedestrian Stairway Installation at Civic Plaza Garage stair height not uniform	5/15/06	<b>CLOSED 7/10/06</b>		
017	OCS Feeder Foundation Assembly	6/23/06	<b>CLOSED 7/25/06</b>		
018	Concrete at devil Strip	7/08/06			
019	Pressure Flash Butt Welding	7/12/06			



020	Ramp wall placed without the required special inspection	7/19/06			
021	Geotechnical Special Inspection not performed prior to rebar placement	7/19/06			
022	High top surface of guideway concrete and spalling concrete at trench edges.	7/21/06			

**Contract: Line Section 4**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
003	MAG B Concrete used where MAG A is required	6/08/06		SSWJV requests 28 day breaks to see if meets MAG A requirements	
004	Embedded Track Slump not met	6/13/06		SSWJV requests 28 day breaks to see if meets PSI requirements	
005	Low Concrete Cylinder breaks at 28 days	6/23/06			
006	Insufficient Opening in Scupper	6/26/06	Voided 7/11/06		
007	Horizontal Alignment Deviations on Left and Right Tracks at 1677+00 to 1678+60	7/07/06			
008	Reinforcing steel at embedded track	7/10/06			
009	OCS pole foundation, TMP-263, Station Location 1679+24	7/15/06			
010	Storm drain construction damage.	7/11/06			

**Contract: Line Section 5**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
001	Agency Furnished Products, Storage Handling deficiencies	4/3/06			No response from Contractor.



**Contract: Tempe Town Lake Bridge**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
002	Asphalt Concrete Pavement – Lakeview Drive	4/13/05		NCR-002 to stay open until completion of Contract in case pavement deteriorates.	If repair required 7/06

**Contract: MP2 Concrete Crossties**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
004	Concrete Tie Spalling	11/15/05		No response to date from CXT.	J. Reyna to contact CXT for response. Estimated date 8/30/06. Money is being held until response and repairs are complete. Contractor will repair after track installation is completed at the MSF. Estimated date 8/30/06
005	Concrete Crossties – Damaged and Workmanship	11/29/05		Response received 12/21/05	Corrective action to be performed by 8/30/06

**Contract: Traffic Signal Hardware**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
001	Traffic Signal Hardware – Nonconforming Paint.	11/07/05		All panels have	Repairs completed. Estimated date of closure of NCR 8/15/06



**Contract: MP5 Ballasted Special Trackwork**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
006	Damaged concrete ties No. 6 Turnout (Y24 & 25 Turnouts)	9/15/05		Contractor has responded and will repair ties.	SSWJV to perform rework at no cost to METRO. Estimated completion 8/30/06
009	Guard Rail Flangeway width low.	11/16/05		Response received from Contractor.	NCR will not be completed and closed until all are inspected, not just ones identified on this NCR. To date 27 out of 37 have been inspected. Estimated completion date 8/30/06.

**Contract: MP8 Girder Rail**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
009	Flawed girder rails at LS5 welding site.	4/25/06		Contractor has responded and has tested all nonconforming rails except two unaccounted for rails.	Completion of testing, cutting out of defects and final report estimated 8/30/06.
010	Girder Rail Indications	5/17/06		Contractor has responded and has tested all nonconforming rails except two unaccounted for rails.	Completion of testing, cutting out of defects and final report estimated 8/30/06.
011	Girder Rail Flaws	7/20/05			To be kept open until all defects on girder rail are cut out, returned or resolved. Estimated closure 9/30/06
012	Switch Machines	7/25/06			



Contract: LRT-04-014-TES – MEC NCRs

NCR/QAR No	Subject	Date Open	Date Closed	Planned Resolution	Remarks
022	Welding of OS Poles to Unapproved Welding Procedures	2/3/06		MEC in process of resolving with subcontractor	Estimated closure by 8/15/06. Awaiting resolution of NCR by GEC.
028	Poles have over spray, runs and shipping damage	3/29/06			NCR is awaiting resolution by GEC by 8/15/06
031	TPSS No. 15 Form failure on south stem wall	4/13/06	<b>CLOSED 7/20/06</b>		
032	TPSS 2 Communications Duct Bank Encased in Slurry Mix	4/13/06	<b>CLOSED 7/20/06</b>		
034	TPSS 15 1 <sup>st</sup> lift grout under specified strength	5/3/06			Prism test to be performed and accepted by GEC. Estimated closure 8/30/06
035	TPSS 15 2 <sup>nd</sup> lift mortar under specified strength	5/4/06			Prism test to be performed and accepted by GEC. Estimated closure 8/30/06
036	TPSS 15 3 <sup>rd</sup> strength grout under specified strength	5/10/06			Prism test to be performed and accepted by GEC. Estimated closure 8/30/06.
039	OCS Poles – Deformations caused by heat straightening	5/26/06			Awaiting concurrence by GEC. Estimated date 8/15/06
040	OCS Poles – Dimensional tolerance of out of roundness not achieved.	5/26/06			Awaiting concurrence by GEC. Estimated date 8/15/06



041	Unacceptable SFRM Substrate from Special Inspection with no follow-up inspection	5/31/06		MEC has requested use-as-is with retest.	Estimated closure 8/15/06
043	TPSS-2 Initial mortar bed for the curtain wall exceeds 1"	6/13/06		MEC has requested use-as-is	Awaiting concurrence by GEC. Estimated date 8/15/06
045	TPSS-1,2,8,9,15 CMU layout incorrect	6/21/06		MEC has requested use-as-is	Awaiting concurrence by GEC. Estimated date 8/15/06
046	TPSS-1 Mortar on 2 <sup>nd</sup> lift has low compression tests	6/28/06			No response to date.
047	TPSS-1 CMU Mortar Compression test results below specified strength.	7/6/06			
048	TPSS-6 Broken Cast Iron Fitting	7/7/06			
049	TPSS-6 Incorrect location for Exhaust Fan Block-out	7/7/06			
050	TPSS-9 Refrigerant Piping Damage	7/10/06			
051	TPSS-5 Vertical Dowel Layout Incorrect, Drilled and Expoxied	7/11/06			
052	TPSS-8,9,15 Doors and Frames	7/18/06			
053	TPSS-8 Epoxy floor Test and Installation Process	7/18/06			
054	TPSS-5 Slab on grade poured without testing and sampling	7/20/06			
055	TPSS-6 Missed Arc Spot Deck Weld Coating Inspection	7/20/06			



**Contract: LRT-04-014-TES – CAC NCRs**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
014	TPSS No. 2 CMU Installation	6/16/06			CAC requests SCRAP.
S2006-001	Lack of adequate inspection personnel; lack of inspection and surveillance reports, lack of inspection and failure to implement an internal and external audit program.	5/17/06		MEC provided response; however it was unacceptable.	MEC to provide new response by 6/30/06. New response not received. Estimated date 8/15/06
S2006-002	Lack of inspection and surveillance reports	5/17/06		MEC provided response; however it was unacceptable.	MEC to provide new response by 6/30/06. Response received, to be reviewed by CAC by 8/06/06

**Contract: Signals and Communications – MEC NCR's**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
003	Signal Building 4 Grout low on 28 day compressive strength	4/24/06			No approved disposition to date. SSWJ has submitted use-as-is disposition for GEC approval. GEC is in process of accepting prism tests.

**Contract: LRT-04-014-S&C – MEC AFRs**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
AFR-HMM-06-001-02	HMM design drawings	1/16/06		HMM PE to date seal on METRO copy of drawings	About half of drawings have been dated; awaiting return of PE to complete. Estimated completion 9/1/06



**Contract: LRT-04-014-TES –MEC AFR's**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
SFT-06-001	Design review deficiencies	2/13/06			Draft response received. Unacceptable. Awaiting further response. MEC continues efforts to get SFT to provide formal responses by 9/1/06.
SFT-06-002	Discipline checking not documented on check prints.	2/13/06			Draft response received. Unacceptable. MEC continues efforts to get SFT to submit formal responses by 9/01/06.
SFT-06-003	All client comments were not incorporated in the final design review.	2/13/06			Draft response received. Unacceptable. MEC continues efforts to get SFT to submit formal responses by 9/1/06.

**Contract: CAC Owner Furnished Material Procedure Audit A05-01 QARs**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
A05-01-03	Contractor submittal for storage and handling of OFM not submitted.	11/15/05			LS2 Submittal has been accepted. Verification is pending.

**Contract: PCL TTLB Contractor Audit A06-06 QARs**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
A06-06-02	Preparatory meetings	<b>CLOSED</b> 7/20/06			



**Contract: SSWJV Line Section 4 Contractor Audit A06-02 QARs**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
A06-02-01	Receiving inspection nonconformances	1/26/06	<b>CLOSED 6/1/06</b>		
A06-02-02	Traceability nonconformances	1/26/06	<b>CLOSED 6/1/06</b>		

**Contract: SSWJV Line Section 4 Contractor Audit A06-07 QARs**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
A06-07-01	Review of field office documents	04/24/06	<b>CLOSED 6/1/06</b>		
A06-07-02	Incomplete NCR responses	4/24/06	<b>CLOSED 6/1/06</b>		

**Contract: AWC Line Section 3 Contractor Audit A06-03 QARs**

<b>NCR/QAR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
A06-03-01	No receiving inspection logs	2/23/06			Response received 04/03/06; discussion held with Contractor on 04/25/06; Contractor to send revised response by 05/15/06. Revised Response received 05/17/06. Further discussion needed. Meeting held 06/28/06 to discuss resolution. Contractor response is unacceptable. T. Cottrill issued letter to LS3 Project Manager instructing LS3 to comply with receiving inspection requirements. Estimated resolution by 8/30/06.



**Contract: CAC MSF RE Audit A06-08 QARs**

QAR No.	Subject	Date Open	Date Closed	Planned Resolution	Remarks
A06-08-01	Maintaining working set of Contract Drawings	05/23/06		Drawing Log and sketch numbering requirements to be deleted from RE Manual as GEC does this. This action and other deficiencies to be corrected by 08/15/06.	
A06-08-02	Maintaining a Daily Diary	05/23/06		Response indicates RE has been maintaining a diary. Verification is pending.	
A06-08-03	Monitoring required vs. received Contractor CDRLs	05/23/06		Wong CMS software to be modified by 08/15/06 to track this for each Project.	
A06-08-04	Confirming Contractor filing system & records	05/23/06		RE Manual to be modified by 08/15/06 to permit this confirmation to be accomplished via QA audits by CAC QA.	



A06-08-05	Documenting REPAIR & USE-AS-IS NCR dispositions; and documenting re-inspection of REPAIR & REWORK NCR dispositions	05/23/06		Deficiencies have been corrected as of 07/01/06; verification is pending.	
A06-08-06	Use of test lab Call Notification Form and Maintenance of Verification Test Log	05/23/06		RE has committed to use of Call Notification Form and Verification Test Log for remainder of Project; verification is pending.	
A06-08-07	Preparation of IDRs for Contractor non-work days; and documenting deficient conditions in IDRs that lead to NCRs	05/23/06		Requirement to maintain IDRs for non-work days to be deleted from RE Manual by 08/30/06. Inspectors made aware of second deficiency and instructed to note deficient conditions in IDRs that lead to NCRs.	



**Contract: CAC TLB RE Audit A06-10 QARs**

QAR No.	Subject	Date Open	Date Closed	Planned Resolution	Remarks
A06-10-01	Maintaining Drawing Control Log	05/23/06		This requirement to be deleted from RE Manual, by 08/15.06, as GEC maintains this Log.	
A06-10-02	Tracking required vs. received Contractor CDRLs	05/23/06		Wong CMS software to be modified by 08/15/06 to track this for each Project.	
A06-10-03	Confirming Contractor filing system & records	05/23/06		RE Manual to be modified by 08/30/06 to permit this confirmation to be accomplished via QA audits by CAC QA.	
A06-10-04	Documenting re-inspection of REPAIR & REWORK on NCR Form	05/23/06		NCR form has been corrected to provide appropriate space for documenting re-inspection; verification pending.	
A06-10-05	Documenting completion of NCR Corrective Actions in Inspector's Daily Reports	05/23/06		Inspectors have been directed to document completion of NCR corrective actions in IDRs; verification is pending.	



**Contract: CAC LS4 RE Audit A06-12 QARs**

<b>NCR/QAR No.</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
A06-12-01	Noting RFI responses on working set of as-built drawings	06/22/06		LS4 RE has added staff to correct this deficiency. Expect backlog to be deleted by 07/21/06; verification is pending.	
A06-12-02	Verifying Contractor compliance to filing system and records storage requirements	06/22/06		RE Manual to be modified by 08/30/06 to permit this confirmation to be completed via QA audits by CAC QA.	
A06-12-03	Not completing IDR for non-work days.	06/22/06		Requirement to maintain IDRs on non-work days to be deleted from RE Manual by 08/30/06.	
A06-12-04	Not always noting discovery of deficient conditions that lead to NCRs, in IDRs.	06/22/06		Inspectors have been advised of this deficiency and of the requirement to note such discovery in the IDRs; verification is pending.	



**Contract: LS2 Contractor Audit A06-13 QARs**

QAR No.	Subject	Date Open	Date Closed	Planned Resolution	Remarks
A06-13-01	Not maintaining Receiving Inspection Logs	07/19/06			Response due 08/07/06
A06-13-02	Not maintaining as-builts per Agency Spec Section 01789	07/19/06			Response due 08/07/06
A06-13-03	Not providing copies of material test reports to RE	07/19/06			Response due 08/07/06

**Contract: CAC LS3 RE Audit A06-14 QARs**

QAR No.	Subject	Date Open	Date Closed	Planned Resolution	Remarks
A06-14-01	Not maintaining a working set of Contract Drawings as required	07/21/06			Response due 08/09/06
A06-14-02	Not tracking required vs. received CDRLs	07/21/06			Response <b>Contract: CAC LS3 RE Audit A06-14 QARs</b> due 08/09/06
A06-14-03	Not verifying Contractor compliance to filing system and record storage requirements	07/21/06			Response due 08/09/06



A06-14-04	Not implementing requirements associated with the use of an independent test lab	07/21/06			Response due 08/09/06
A06-14-05	Inspectors not noting the completion of NCR corrective actions in IDRs	07/21/06			Response due 08/09/06
A06-14-06	Significant backlog of un-prepared and un-issued IDRs	07/24/06			Response due 08/09/06

**Contract: LRT-04-014-TES -METRO AFRs**

<b>AFR No</b>	<b>Subject</b>	<b>Date Open</b>	<b>Date Closed</b>	<b>Planned Resolution</b>	<b>Remarks</b>
2006-E-004 - 001	QC Personnel are not documenting quantities and percentages of work completed.	6-12-06		Submit RFC for requirement change as MEC Project Engineer performs this function	RFC initiated. Item to remain open pending receipt and approval of RFC. QAP Section 1.0 page 4 of 6 has been revised to reflect this function is currently performed by the Project Engineer



2006-E-004 - 002	MEC Subcontractor sub vendor and MEC Quality Consultant not on MEC Approved Vendor List	6-12-06	7-31-06	Update MEC Approved Vendor List for the Quality Consultant. MEC has initiated NCR 022 and CAR 003 to SSPM and subcontracted for full inspection including VT, MT, PT, UT and coatings of poles completed that were provided by unauthorized subcontractor vendor.	Reviewed CAR 003 and NCR 022 as well as random Steel Inspectors of Texas inspection Reports for VT, MT, PT, UT and Coatings. All acceptable.
2006-E-004 - 003	Transmittal or other correspondence listing the documents transferred to Structural & Steel Manufacturing and the subsequent receipt acknowledgement of the forwarded documents from MEC to S&S was not available.	6-12-06		Provide specified information via transmittal and obtain receipt acknowledgment	CA In progress
2006-E-004 - 004	The MEC Organization Chart is not reflective of the current organization, defined procurement and contract approvals are not reflective of current practices.	6-12-06		Revise Organization Chart and revise and clarify procurement and contract responsibilities.	CA in progress.
2006-E-004 - 005	Work commenced prior to MEC ITP approval	6-12-06	7-31-06	Submit revised ITP for CAC/RE Approval	Reviewed approved I&TP submittal No. 809
2006-E-004 - 006	MEC QP-11 Inspection and Test did not include the required provisions for personnel qualifications and environmental conditions.	6-12-06	7-31-06	Add the specified requirements to QP-11.	Reviewed revised procedure.



2006-E-004 - 007	Inspection and Test Records do not contain provisions for Name of item(s) inspected, Deviations/nonconformances, Evaluation of results and Acceptability.	6-12-06	7-31-06	Update Quality Surveillance Reports	Reviewed revised Quality Surveillance Report in QP-6.
2006-E-004 - 008	Receiving Reports do not include the supplier of service or product and green acceptance tags not utilized to reflect accept status.	6-12-06	7-31-06	Revise Receiving Inspection Reports to include the supplier. Revise procedure QP 12 Section 4.1.1.C to reflect acceptance status by exception. i.e. Red Tag or designated Hold Area for nonconforming material or product.	Reviewed revised Receiving Inspection Report for 7-27-07. Reviewed revised QP 4.12 Nonconforming items by designated Hold Area, red tagging and or other segregation. All other items or material accepted by exception.
2006-E-004 - 009	Stop Work Authority conflicts.	6-12-06	7-31-06	Revise QA Section 1.2 to clarify Stop Work Authority. Develop Stop Work Procedure.	QA Plan Section 1.2 revised to clarify that all MEC personnel have Stop Work Authority. QP Procedure QP-19 Stop Work Procedure has been developed.
2006-E-004 - 010	MEC initiated NCRs must be submitted to the Resident Engineer for approval.	6-12-06	7-31-06	Revise QP 14 to clarify MEC NCR submittal and RE responsibilities.	QP 14 Para. 4.11 revised to include all MEC NCRs will be forwarded to RE as follows: Rework or Scrap, info only, Use as Is or Repair for resolution.



2006-E-004 - 011	NCR Form is an uncontrolled document and does not contain provisions for the investigation and identification of the Root Cause of the nonconforming condition.	6-12-06	8-1-06	Revise QP-14. NCR Form to be revised.	QP-14 revised to include provisions for the identification of Root Cause and NCR Form QP-14.1 revised to include the Form No., Revision Lever and effective date.
2006-E-004 - 012	QP-16 Rev.) Quality records does not incorporate provisions for the initiation of the responsibility for the initiation of Quality Records.	6-12-06	8-1-06	Revise QP-16 to clarify initiation responsibility for quality records.	QP-16 Para. 3.1 revised to incorporate quality record initiation responsibility.
2006-E-004 - 013	QP-16 Rev. 1 does not include provisions for the identification of every type of quality record to be generated.	6-12-06		QP-16 to be revised to reflect the types or examples of quality records to be generated.	QP-16 Para. 4.3 revised to reflect examples of those records include but are not limited to as denoted in Para. 5.1. RFC initiated to reflect change in Spec. AFR to remain open pending RFC approval.
2006-E-004 - 014	MEC Training Matrix does not identify the type of training to be performed or has been performed, i.e. classroom or self study.	6-12-06	8-1-06	Revise QP-18 to identify they type of training, classroom or Read and Acknowledge.	QP-18 Training Matrix revised to incorporate classroom or self study training.
2006-E-004 - 015	Hanson Concrete Company Batch Delivery Tickets not being completed by the drivers.	6-12-06		Hanson Concrete Company to resolve this issue with their drivers.	CA in progress
2006-E-004 - 016	MEC Organization Chart not reflective of the current project organization.	6-12-06		Revise organization chart	CA in progress.



2006-E-004 - 017	MEC Field Inspection Reports (FIRs) do not contain all required information.	6-12-06	8-1-06	Revise FIRs to include required information.	Reviewed revised FIR Forms. Specification, revision and revision date, quantity of items and test procedures provisions incorporated.
2006-E-004 - 018	MEC NCR Form does not include provisions or acknowledgement areas for the date corrective action performed, who performed the activity, what action was taken and who signed off the work or activity as being complete.	6-12-06	8-1-06	Revise NCR Form to include specified requirements.	Reviewed revised NCR Form QP-14.1 Rev. 1. Criteria added as required.
2006-E-004 - 019	MEC Receiving Inspection Log does not include provisions for the Accept/Reject Status or the NCR number as applicable.	6-12-06	8-1-06	Revise Receiving Inspection Log to incorporate requirements.	Reviewed revised Receiving Inspection Log Form QP-12.1 Rev. 1. Info. included
2006-E-004 - 020	Audit Plans not initiated and approved by the RE for HMM External Design Audit HMM 05-001	6-12-06		Initiate RFC to change specification requirements.	RFC initiated to revise requirements. AFR to remain open pending approval of RFC.
2006-E-004 - 021	Audit entrance/exit meetings not conducted and issues discussed not documented.	6-12-06	8-2-06	External audit entrance and exit meetings to be chaired by MEC personnel and will be conducted by MEC and consultants utilizing MEC audit documents.	Corrective action is acceptable however this activity when performed will be re-audited by METRO QA for conformance. AFR closed but will be incorporated for future audits of MEC activities.



2006-E-004 - 022	Conflict with MEC and Specification requirements for utilization of AFRs or QSRs.	6-12-06	8-1-06	Revise QP Section 14 to reflect utilization of AFRs rather than QSRs.	Reviewed revised QP Section -14 which now incorporates the utilization of the AFR rather than QSR.
2006-E-004 - 023	MEC Quality Consultant Qualifications not available.	6-12-06	8-1-06	Obtain Quality Consultant Qualifications	Reviewed quality consultant qualifications.
2006-E-004 - 024	MEC External Audit Report does not address Root Cause or Recommended Actions to Preclude Recurrence.	6-12-06		RFC to be initiated for revising this requirement for external audits where outside consultants are utilized. Future external audits to be performed utilizing MEC documents.	This AFR to remain open pending approval of the RFC.
2006-E-004 - 025	Quality Manager not documenting his review of the MEC NCRs.	6-12-06	8-2-06	Revise Form QP-14.1 to reflect QM review/approval of NCRs.	Reviewed revised Form QP-14.1. QM review/approval provisions incorporated. QM initialed existing NCRs 001-051 confirming review and approval.
2006-E-004 - 026	MEC NCR Form does not include provisions for the MEC PM to document approval of his disposition, the final disposition or technical disposition approvals. No signature block to document PM approval or acceptance.	6-12-06	8-1-06	Revise NCR Form and procedure QP-14 to clarify PM responsibilities.	Reviewed QP-14 para's. 4.4 & 4.5 revisions to clarify the PM is responsible for providing and documenting NCR dispositions. Reviewed revised NCR Form QP-14.1 to incorporate PM review and approval.



2006-E-004 - 027	MEC NCR Form QP 14.1 does not include provisions for the Project Superintendent to document the corrective action taken	6-12-06	8-1-06	Revise QP-14 to remove the Superintendent, CA may be performed by others. Revise NCR Form to reflect actual personnel performing CA and date.	Reviewed revised QP-14. Superintendent has been removed. NCR Form QP-14.1 has been revised to reflect the corrective action completion by whom and the date.
2006-E-004 - 028	A random review of Purchase Orders 206304 and 204221 identified that the Purchasing Manager and the Quality Manager has not reviewed the procurement documents as specified	6-12-06			Disposition not received.
2006-E-004 - 029	Supplier NCR from Structural & Steel Manufacturing No. LR-3001-1 does not address item a.) Evaluation of deficiencies	6-12-06	8-2-06	Supplier NCR. Revise QP-5 to reflect the requirement of Root Cause Analysis and Corrective Action Reporting.	QP-5 Para. 4.8.a, reviewed. Revised to include Root Cause Analysis and Corrective Action reporting. Due to this being a supplier the Root Cause Analysis and Corrective Action Report was performed by MEC and documented on Report No 3 dated 4-20-06.
2006-E-004 - 030	A tabulation of items requiring source inspection was not performed	6-12-06			Disposition not received at this time.
2006-E-004 - 031	Training records not available for all designated MEC and subcontractor personnel	6-12-06			Disposition not received at this time.



2006-E-004 - 032	MEC audit schedule does not include provisions for audit by element but rather by the entire system.	6-12-06			Disposition not received at this time.
2006-E-004 - 033	Audits report of HMM 05-001 does not reflect if AFRs initiated are endemic or isolated cases.	6-12-06	8-1-06	Revise QP-17 to remove this requirement as QA Trend Analysis will determine trends or CA effectiveness.	Reviewed revised QP-17. Concur.
2006-E-004 - 034	HMM external Audit AFRs not reviewed by MEC Quality manager.	6-12-06	8-2-06	Review AFRs.	The MEC QM has reviewed and documented his review of the HMM AFRs 01, 02 and 03 on the AFRs.
2006-E-004 - 035	Satisfactory inspected items not tagged with green tags as specified.	6-12-06	8-2-06	Revise QP-12 to clarify acceptance criteria identification.	Reviewed revised QP-12 4.1.c to reflect items or other than those identified with a Red Tag are deemed to be "acceptable". Concur.
2006-E-004 - 036	Placement of nonconforming grout.	6-12-06			Disposition not received at this time.
2006-E-004 - 037	NCR Log does not include provisions for identifying the source or supplier.	6-12-06	8-2-06	Revise Form QP-14-2 to reflect source/supplier.	Reviewed revised Form QP-14.2 which has incorporated a brief description of nonconformance and source/supplier.
2006-E-004 - 038	Corrective action Response Due Date exceeds the five day due date for HMM Audit AFR 05-001-01.	6-12-06	8-2-06	Revise QP-17 to reflect a more realistic response due date.	Reviewed revised QP-17 Para. 4.6.3 which now reflects a response due date of 15 working days.



## 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
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
LAN	Local Area Network
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
METRO	METRO
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
OPS	Operations
PA	Public Address
PAN	Pantograph
PBAX	Telephone Private Exchange And Controls
PCI	Prestressed Concrete Institute
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	Registered Engineer
RFI	Request For Information
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