



Metro

Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Te
metro.net

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OPERATIONS COMMITTEE
March 19, 2009

SUBJECT: CONTRACT MODIFICATIONS

ACTION: APPROVE UNIVERSAL FARE SYSTEM (UFS) CONTRACT MODIFICATIONS

RECOMMENDATION

Authorize the Chief Executive Officer to:

- A. Execute a Contract Modification to Contract OP02461010 with Cubic Transportation Services, Inc. for on-going systems support services, adding Metro Gold Line Eastside Extension and EXPO Line; and the TAP Regional Central Computer, for a three year contract in an amount not-to-exceed \$23 million, increasing the total System Support Services contract value from \$24,599,257 to \$47,599,257.
- B. Execute Contract Modification No.12 to Contract PS-4210-1026 with Booz Allen Hamilton to support regional integration of Congestion Pricing/Tolling and El Monte / Artesia Transit Center Dual Hub BRT; Local Transit Service Systems (LTSS) TAP systems design and Municipal Operator TAP implementation oversight; and Metrolink - TAP integration; Expo Fare Equipment & Systemwide Gating installation oversight; in an amount not-to-exceed \$2.95 million, increasing the total contract value from \$10,424,309 to \$13,024,309.

RATIONALE

Modification to Cubic Contract:

TAP equipment to support Metro Gold Line Eastside Extension for June Revenue Operation Date (ROD) is required, and pre-revenue testing has already begun in the TAP test labs at San Diego and at Metro. The Eastside Extension ticket vending machines (TVMs) and Stand-Alone Validators (SAVs) were previously acquired by separate Board approval in June, 2005 and are now ready to be installed at all stations beginning April – May 2009 for field testing and must be added to the TAP systems support contract with Cubic Transportation Systems, Inc. This will ensure that all TAP rail equipment services to support new rail operations are aligned with the TAP base contract for the UFS equipment which is now in full revenue service supported by Cubic's UFS systems services contract since 2006. In addition, the option to add the equipment for Exposition Line to this services contract together with the new Regional Central Computer will ensure getting the best pricing from the economies of including all of the UFS equipment, with uninterrupted systems support. The acquisition of the Exposition Line TVMs and SAVs were funded and approved by the Board in July, 2006. This equipment is currently in production at Cubic.

The modification to the Cubic systems support contract represents the following history and new 3 year extension including expansion of rail service to include the Metro Eastside (MGLEE) and Expo Lines. It does not include the anticipated expansion of the Metro Orange Line stations, nor the equipment needed to support the Congestion Pricing / Dual Hub BRT system on the I-10 – I-110 corridor, anticipated to include off-board payment and rear door boarding fare policies:

Base Contract Plus New Rail & Region Computer	\$ Millions Systems Support Paid to Date			\$ Millions Extended with Rail Expansion			3 year total - Does Not Include Orange Line Expansion, gates, or CP/Dual Hub TVMs, SAVs, HHUs, & RRVs*
	2006	2007	2008	2009	2010	2011	
Base Rail TVM Services	3.20	3.80	3.80	4.00	4.20	4.40	3 year total - Does Not Include Orange Line Expansion, gates, or CP/Dual Hub TVMs, SAVs, HHUs, & RRVs*
Point of Sales Devices				0.60	0.63	0.66	
Orange Line TVM Services	0.85	0.85	0.85	1.10	1.16	1.21	
East Side (MGLEE)*				0.25	0.26	0.28	
EXPO					0.30	0.32	
TAP Regional Computer				0.90	0.95	0.99	
	4.05	4.65	4.65				
				6.85	7.50	7.86	

*MGLEE = Metro Gold
Line Eastside Extension
CP = Congestion Pricing
TVM = Ticket Vending Machine
SAV = Stand Alone Validator
HHU = Hand Held Units (fare inspection device)
RRV = Rear Door Validators

Modification to Booz Allen Hamilton contract

Booz Allen Hamilton has been assigned the single point of accountability for the technical oversight of the Universal Fare System automated fare collection equipment and the TAP smart card electronic fare payment system. Booz Allen is responsible to ensure that the specifications they authored are implemented in accordance with the equipment and services contracts with Cubic Transportation Systems, Inc., GFI-Genfare subcontractor, and ACS regional services operator.

As TAP prepares for full implementation, new integration needs are described as follows:

	Period of Performance	Description/Project	Added Scope for Booz Allen	Cost
1. Part A	April 09 – December 2010 20 months	Congestion Pricing / Tolling I-10 and I-110 HOV and El Monte to Artesia Transit Dual Hub BRT (Silver Line Design/Build) NOTE: PE contract for the El Monte project forthcoming in April 2009	Technically specify fare systems engineering for on- and off-board fare collection. Civil engineering of fare equipment installations at El Monte, Artesia Transit Centers. Integration oversight of all transit operators using HOV	\$750,000
1. Part B	April 09 – December 2010 20 months	Congestion Pricing / Tolling	Technical support for Congestion Pricing procurement; reviews of submittals as needed to support toll credits for TAP customers	\$100,000
2.	April 09 – June 30, 2010 (extension of period of performance at no-cost, if necessary)	Metrolink Integration	TAP integration oversight; technical engineering and specification for all Metrolink fare transfers to be designed into TAP	\$500,00 Paid in full by Metrolink MOU
3.	April 09 – December 2010	Local Transit Service Systems (LTSS)	TAP integration oversight; technical engineering and specifications for all LTSS operators' devices. Fare policy integration of EZ Transit Pass & Muni Interagency Transfers (IAT); installation testing & and oversight	\$1 mil Funded by Board Approved action in September 2002
	Period of Performance	Description/Project	Added Scope for Booz Allen	Cost
4.	April 09 –	Metro Rail Expansion	Pre-revenue testing	\$600,000

	December 2010		of Eastside Extension TVMs, SAVs, and gates; Systemwide Technical Integration testing and installation oversight of gates; TVM and SAV installation and civil engineering oversight of Expo Line; review of Metro Orange Line design submittals; including engineering, installation testing and oversight of all TVM and SAV installation at Canoga	Included and funded from existing Life of Project Budget #210094
			TOTAL Modification:	\$ 2,950,000.
			Total Contract Value	\$13,024,309.
Please see Attachment B for all previous Booz Allen contract actions.				

Please see Attachment A for a detailed description of the contract modifications required now.

FINANCIAL IMPACT

The funding of \$3.3 million for the increase in Cubic responsibilities has been included in the FY10 budget in multiple bus and rail projects in cost center 5440, Revenue, for systems support and rail equipment maintenance of Eastside Extension TVMs, and SAVs, the Regional TAP computer, point of sale equipment at over 400 TAP media vendors in the region, and all related TAP rail infrastructures. These expenses are funded with bus and rail operating revenues.

Since these modifications include multi-year contract options, the cost center manager and appropriate Executive Officer will be accountable for budgeting the cost of TAP support services in future years.

The funding of the recommended contract modification to Booz Allen Hamilton has been included in the proposed FY10 budget in the following projects and cost center:

1. \$850,000 in project #210120 Congestion Pricing/Tolling I-10 and I-110, cost center 2210. The source of these funds are federal funds and local match from the congestion pricing reduction program.
2. \$1,000,000 in capital project #200351 UFS, and cost center # 3020 for LTSS design, integration testing, and installation oversight. The source of these funds is Prop C40% as approved by Board motion in September 2002.
3. \$600,000 in capital project # 210094, Rail Gating and cost center #3020, TAP Operations for integration testing, installation oversight and fare policy integration of regional fare products. The source of these funds is Prop 1B Security funding.
4. Additionally, \$500,000 will be provided by SCRRA for Metrolink design and integration testing as per the MOU in Attachment E.

Since these modifications include multi-year contract options, the cost center manager and appropriate Executive Officer will be accountable for budgeting the costs in future years.

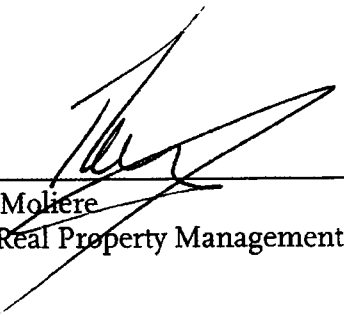
ALTERNATIVES CONSIDERED

One-year modifications to the CTS maintenance and systems support contract was considered, however the cost for the contractor to deliver full services for only a one-year extension was not cost effective. Rather than the \$6.85 million for year 1 of a three year contract, the contractor informed us that to only have a one year period of performance would increase these same services to over \$9 million for one year, due to the ramp up and administrative costs associated with supporting the system, in accordance with the Key Performance Indicators based on availability of all rail devices. A ten-year extension to the contract with Cubic was also considered, however staff felt that the current financial situation precluded this recommendation.

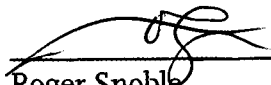
ATTACHMENT(S)

- A. Contract Modifications Required
- B. Booz Allen Contract History
- C. Procurement Summary - Cubic
- D. Procurement Summary - Booz Allen Hamilton
- E. Metrolink MOU

Prepared by: Jane Matsumoto
Deputy Executive Officer
TAP Operation



Roger Moliere
Chief Real Property Management & Development



Roger Snoble
Chief Executive Officer

CONTRACT MODIFICATIONS REQUIRED

1. Congestion Pricing/Tolling and Dual Hub TAP Integration Oversight –

Part A: This level of effort is timed with the construction and engineering team who are responsible for the complete physical engineering of the Congestion Pricing/Tolling project. Their separate Board action for the recommended award of the PE contract is forthcoming, likely next month. They have stipulated in their scope of work, that their construction contractor shall work with, and coordinate all fare technology with the UFS/TAP implementation team. This phase of Booz Allen's level of effort will identify all Transit Operators using the I-10 and I-110 HOV lanes to support Congestion Pricing with TAP equipment for Metro, Foothill Transit, LADOT Commuter Express, Torrance Transit and Gardena Municipal Bus Lines. Metro is procuring buses for Foothill, Torrance Transit and Gardena for the implementation of the Congestion Pricing project; Metro is also planning a Dual Hub bus service that is intended to support a flat fare BRT-like system similar to the existing Metro Orange Line, and accommodate other regional fare products that include the EZ Transit Pass and Interagency Transfers (IATs). Booz Allen will provide technical oversight of successfully integrating fare policies with fare technology for all TAP devices. This includes ensuring that transactions captured on these devices can ensure future TAP customers with potential tolling credits

Booz Allen will design and technically specify TAP facilities modifications including civil work to be performed at El Monte and Artesia Transit Centers to support TVM installations and off-board Stand Alone Validation (SAV) devices. The consultant shall also coordinate closely with the architecture and engineering teams supporting the El Monte and Artesia Transit Center projects, so that TVMs and all associated infrastructure are coordinated with the design and construction phases of the projects. The TVMs and SAVs must have telecommunication infrastructures to support data transmission. Unlike the current rail stations that are supported by fiber optic connectivity that include the SCADA driven TVM intrusion alarm system, Booz Allen must evaluate the most technically sound, cost effective means to get transaction data from the El Monte and Artesia Transit Center TVMs and SAVs plus all HOV station SAVs back to the TAP central computers. Booz Allen will be responsible to coordinate the TAP construction schedule and engineering specifications with the Congestion Pricing team to ensure that all necessary fare collection infrastructures and devices have been appropriately sized and technically specified, including all civil work to support their Revenue Operation Date. Booz deliverables will also include pre-revenue testing, and on-sight installation oversight

Safety and security of personnel and patrons retrieving fare revenue or paying cash fare is paramount. Booz Allen will review the CCTV camera configuration for the protection of fare collection equipment as is currently done for all Metro Rail and Metro Orange Line TVMs and SAVs, plus to ensure for the safety of customers and revenue personnel. Booz Allen will

Attachment A

provide engineering support to ensure the development of protocols for intrusion detection and notification to law enforcement personnel, especially critical if SCADA alternatives must be designed. Integration with “*HP Open View*”, a health monitoring device of all rail UFS TAP equipment that has a 24 hour x 7 days a week connection to Cubic’s Revenue Operation Service Desk and to Metro’s ROC and BOC. Any configuration changes at El Monte and Artesia Transit Center will be essential for Booz Allen to technically validate.

As noted, TVMs are anticipated only at the “hubs” in El Monte and at the Artesia Transit Center, so that customers can conveniently purchase fare media off-board the buses. SAVs will be installed on all of the HOV stops along this corridor – no ticket vending machines are anticipated at these stops on the I-10 or I-110. TVMs at the two “hubs” must be engineered to support all regional fare products, not just Metro fares, since customers from the region will use these hubs for loading and buying TAP fare media. In addition, SAVs will support “virtual gate” configuration for flat fare, BRT fare policy implementation (mirroring Metro Orange Line architecture) so that patrons can TAP off of the vehicles and board from rear doors of buses. Engineering of these validation devices must include automated capabilities, such as autoloads, for all transit agency customers boarding and alighting along the HOV alignment.

The most challenging deliverable for Booz Allen will be to design and technically specify fare policy algorithms for TAP regional transfer capabilities in all fare products of operators using the I-10 and I-110 HOV, including Metro, Foothill Transit, LADOT, Torrance Transit and Gardena Municipal Bus Line. These regional customers will further transfer to rail, particularly at intersecting services along the corridor that minimally include Imperial/Wilmington Metro Green and Blue Lines, 7th/Metro Red and Blue Lines; and at Union Station Metro Red and Gold Lines plus Metrolink and other connecting regional bus operators. Booz Allen must technically specify the back office architecture of all connecting TAP systems, including fare table changes and fare media types, to the TAP Regional Central Computer for all operators using this HOV corridor, particularly if “tap on” and “tap off” is integrated on bus BRT systems with “tap in” and “tap out” rail fare policies.

In addition, Booz Allen must further technically specify Hand Held validation devices (HHVs) for off- and on-board fare inspection and fare enforcement on I-10 and I-110 HOV by Metro, Foothill, and potentially LADOT, Torrance, and Gardena, to enable fare inspectors and law enforcement personnel to check fares depending upon fare policies adopted along this corridor. Currently, there are insufficient quantities of HHVs to support existing service according to Transit Security and Operations. With a new off-board payment system opening on this alignment, the HHV quantities must be increased, and further designed to inspect all regional fare products. Currently, HHVs are designed to support Metro Rail and Orange Line operations. Booz Allen must specify technical changes to the HHV to accommodate all fare products and fare policies of those operators implementing off-board validation, such as Foothill Transit’s Silver Streak service along with Metro, so that one HHV system can read all TAP fare products and enable seamless fare inspection and enforcement.

Booz Allen will write the test scripts to ensure the integrity of the transactions being accepted on the Congestion Pricing alignment. Booz Allen will further design and specify all relevant changes to Regional Services Center financial systems and website; and provide

Attachment A

on-sight technical oversight of Cubic and ACS contractors. If new fare policies are adopted, financial clearing and settlement processes must be evaluated to ensure compliance to adopted tariff regulations and operating rules on both the Cubic and ACS systems. Booz Allen will ensure that regional fare policies and tariff rules can be accommodated by the design of the financial systems supporting TAP sales devices, not limited to all commercial retailers sales devices (CPOS); the multi-purpose smart card loading and card management device (MPOS); as well as the devices already mentioned: TVMs, SAVs, HHVs, bus fare boxes, bus validators, and rail gates to ensure the deliverable of one fully integrated, interoperable regional fare collection system.

Lastly, where new fare policies are required for rear door validation, Booz Allen will ensure that new driver control units and on-board, multiple rear door validation devices are also technically specified. Such devices can also be configured and architected to support future distance based fares on buses. LADOT has procured this “stand beside” devices so modifications to accommodate new fare policies must be identified and configured in time to meet their installation schedule. Foothill Transit is also waiting for specifications to implement this alternative since they have already adopted rear door boardings on Silver Streak. Rear door boardings can be accommodated on the HOV alignment by the use of off-board SAVs; however, in the parts of the system that require “on street” bus stops northeast of Adams Boulevard into Downtown Los Angeles, on-board rear door validation devices on the back doors of bus vehicles will ensure the consistency and lack of confusion for patrons boarding and alighting the service where SAVs are not feasible on the public streets off of the freeway HOV corridor in Los Angeles. Booz Allen will write the technical specifications to effect such changes to the on-board devices and ensure back office integration oversight.

Part B: This part of Booz Allen’s deliverables is mutually exclusive of the efforts described above, in **Part A** which is intended to maintain TAP inter-operability for customers and between regional operators using the CP/Tolling I-10 and I-110 HOV corridors.

Part B, however, is an independent activity for Booz Allen to help support the Congestion Pricing/Tolling project management team through the procurement phases (RFIQ and RFP processes). Booz Allen has been providing TAP design interface briefings as directed through the CP/Tolling management. As the CP/Tolling team progresses into the RFP process, Booz Allen will provide technical clarifications from potential proposers as directed by Procurement and CP/Tolling management. Booz Allen will further evaluate any intended TAP design, architecture and interface approaches. Most significantly, Booz Allen will develop and publish any external interface specifications as required and only as directed by the CP/Tolling management to meet their RFP time line and schedule.

Please note that Booz Allen’s Part B “level of effort” is limited to assistance in defining the TAP infrastructures and potential interfaces as the CP/Tolling project management staff sees appropriate. When the CP/Tolling project management team has determined their preferred systems architecture and design interfaces TAP can then better identify the level of effort required if such a strategy proves to be in the best interest of Metro. Therefore, the current level of effort by Booz Allen will support the Congestion Pricing/Tolling management through the award of contract to the successful CP/Tolling proposer. All other

Attachment A

scope that defines any other future design is not included in Part B. This can be identified for future Board approval by separate action when and if, such activity is later required.

2. Metrolink and TAP Integration Oversight (See Attachment C Fully Funded MOU)

Booz Allen services will be funded by Metrolink's Board authorization in August, 2008 that approved the expenditures of \$200,000 in FY09 and \$300,000 in FY10 for Booz Allen support (Attachment C – Fully funded MOU). The funding for this level of effort is not coming from Metro's budget. For the last 12 months, Metro and Metrolink staffs have met collaboratively each month with the support of Booz Allen consultants to help Metrolink define their "next steps" as TAP gets fully implemented. During this period, Booz Allen helped develop a low cost, low risk alternative to the original approach which began with 10 technology options for full systems integration between TAP and Metrolink. Due to the timing, risks and options for Metrolink to have regional connections with other counties (San Bernardino, Riverside, Orange, Ventura) who were not necessarily looking for TAP interfaces, Booz Allen developed a concept for an alternative, fare policy based solution that associates Metrolink's fare products (pass riders) with connecting transfers to Metro and potentially participating Municipal operators.

As a matter of background, Metrolink provides free regional connectivity by offering connections with 23 different transit operators across the six counties, with the majority transferring to Metro rail and bus (56%). Currently, Metrolink offers free transfers with the purchase of their paper fare media. Metrolink paid transit providers \$6.4 million each year for 7 million transit transfers.

However, last year, the participating regional bus operators increased their reimbursement rates from Metrolink to equal their average cash fare (previously it was the half of a base fare). Metrolink stated in their Board report dated February 5, 2009 (Item 5) that this change resulted in a 60% increase in transit transfer costs to SCRRRA. It is therefore important to note that although Metro provides more than half of Metrolink's transfers the rationale for the recommended reduction of transfer privileges for Metrolink riders became financially necessary. While we have heard that the impacts of fare gates to the Metrolink customers is a rationale to change their existing transfer policies, in reality the constraint on continuing free transfers was fiscally driven, especially since an alternative to costly technical integration options have been overcome.

This provides some rough order of magnitude of the numbers of transferring Metrolink riders that may be potentially impacted from changes in transfer policies:

- As of December, 2008, Metrolink reported 45,000 weekday riders, of whom 50% transfer.
- 80% of the 50% transfer riders purchase Metrolink Monthly and 10 Trip passes, representing about 18,000 weekday riders
- The rest of the 20% who buy single and round trips and also transfer represents 4,500 weekday riders, Monday- Friday

Attachment A

Metrolink has considered eliminating the free transfers for the single and round trip patron that represents a small segment of riders who buy their tickets the same day. A full discussion of their fare policy analysis and the ultimate recommendation of the Metrolink Board are pending their Budget Workshop in March. This decision notwithstanding, approval for Booz Allen support was previously approved in August (see attached MOU), and staff will continue to work on solutions based on the final Board actions.

Booz Allen will design and technically specify fare policy algorithms for TAP regional transfer capabilities in Metrolink fare products; they will further technically specify the back office architecture on the TAP regional computer and regional service center website and financial systems. Booz Allen will be responsible for ensuring fare table changes to Metro and each regional participant's local back offices for all transit agencies accepting Metrolink transfers. Booz Allen will provide on-sight technical oversight of Cubic and ACS contractor including scripting, testing and implementation oversight, plus writing any necessary interface specifications between Metro and Metrolink devices.

3. Local Transit Services Systems (LTSS) Integration Oversight –

Booz Allen's level of effort for LTSS operators would be funded from previously Board authorized sources. In 2001, LTSS Operators had \$5 million approved by the Board to procure UFS equipment so that they could become TAP compatible. In 2004, they contributed \$1 million from their \$5 million Board authorized funds to support procuring the TAP Regional Central Computer leaving \$4 million for future equipment procurements. LTSS operators contributed the \$1 million to the Regional Central back office computer in good faith that we would find compatible solutions for their operators, some who do not require a full TAP fare box. Currently, several potential alternatives are available; however, LTSS operators need technical assistance and oversight to proceed with their "next steps".

This is further underscored by the fact that the list of agencies accepting EZ Transit Pass has grown close to 30 operators, of whom only 11 have TAP enabled fare boxes. While consideration has been given to simply leaving this fare media on paper, or putting stickers on the TAP card for visual inspection, either of these two options would require parallel systems on both paper and TAP infrastructures to exist. Such duplicative systems are currently causing dual operating expenditures in order to maintain two tandem, but separate systems and business processes, including separate staff resources to support paper, stickers and TAP. A lower cost alternative using TAP enabled readers has been a new option, so that the region can fully implement TAP, including smaller LTSS operators who accept EZ Transit Pass and Interagency transfers.

Booz Allen is required to design and technically specify appropriate devices to support LTSS by writing specification requirements for TAP fareboxes, "stand-beside" validators or equivalent. They would also technically specify the back office architecture, including fare table changes to the TAP Regional Central Computer; technically specify device and local TAP systems architecture for all transit agencies accepting TAP transfers; design and specify all changes to Regional Services Center financial systems and website; provide on-sight technical oversight of Cubic and ACS contractor including scripting, testing and

implementation oversight. Booz Allen would also provide technical integration support for Municipal Operators on contract to install TAP equipment including support for fleet growth and other facilities modifications such as the 10 contracted operators for LADOT. Booz Allen would design and technically specify fare policy algorithms of EZ Transit Pass and Interagency Transfer Agreement (IAT) transition to TAP; provide technical design oversight of all TAP devices accepting new Limited Use paper smart cards for IATs; write all specifications for new fare media, including electronic applications on NFC devices.

LTSS and Municipal Operators have asked for an alternative to paper tickets used for interagency transfers. Metro has found a source for low-cost disposable tickets for this purpose, however, Booz Allen is required to write the specifications for use in the regional system, and ensure that the fare tables of each Municipal Operator and LTSS operator is configured to accept, read, and write to these paper smart card transfers for ubiquitous, seamless transactions in our TAP fare system.

4. Installation Oversight & Integration Testing of Rail Gates -

Booz Allen has completed the exiting calculations to determine fare gate quantities, and has been working with Metro Safety and Rail Construction to review all submittals from the contractor, Cubic. They have completed the technical specification for the gates, and are now ready to begin technical oversight of the gates being prepared for installation at the first two stations at Mariachi and Soto on the Metro Gold Line Eastside Extension (MGLEE).

Booz Allen is the technical, on-sight oversight for pre-revenue testing at Mariachi and Soto, and at each subsequent MGLEE stations for TVM and SAV installation testing and oversight. They will provide on-sight oversight of gate technical testing and installation oversight on Metro Red/Purple, Green, Blue, Gold Line stations; specify all fare products and TAP fare policies to be supported by rail gates, including the implementation of Limited Use smart cards for one-way and interagency transfer accommodations.

Booz Allen is responsible to design and specify the tariff rules and policies to support three phases of rail gate operations – “free spinning” phase; “TAP –in” phase and “TAP-in and TAP-out” phase. As customers begin seeing the physical installation of the gates, we must design the TAP cards and the rail gates to accommodate how they become “locked” in phases to tap into, and tap out of, the stations. Each phase requires specifying how the TAP cards will accept the various fare products and see each discrete transaction for reporting to the Central Computers. This is especially important for other regional operators (Munis, LTSS EZ Transit Passes, Interagency transfers, Metrolink transfers) are pre-identified and recognized by the implementation of new gates. Booz Allen will be responsible to ensure that these tariff rules are supported technologically with the equipment. Therefore, they will be critical in the design and integration of all TAP fare products including gates, TVMs, SAVs, HHUs.

The last piece of this level of effort also includes the technical oversight of customer service applications that are needed to ensure public telephone and CCTV camera integration and design. Booz Allen is responsible to provide technical support to Metro Transit Security,

Attachment A

ROC and BOC for revenue-ready support and ensure that a seamless coordination of roles and responsibilities between Cubic's Revenue Operations Service Center and ACS' regional service center are synchronized to assist patrons and the contractors. Moreover, Booz Allen is responsible to provide technical oversight of the performance of rail gates in accordance to the contract's key performance indicator (KPI), based on 99% availability of gates at all times, systemwide. Booz Allen will assist us in designing the performance matrix to monitor the Cubic's response and ensure compliance to the contract.

**BOARD REPORT ATTACHMENT C
PROCUREMENT SUMMARY**

SYSTEM SUPPORT SERVICES

1.	Contract Number: OP-02-4610-10		
2.	Recommended Vendor: Cubic Transportation Systems, Inc.		
3.	Cost/Price Analysis Information:		
	A. Bid/Proposed Price: NTE \$23M	Recommended Price: NTE \$23M	
	B. Details of Significant Variances are in Attachment A-1.D		
4.	Contract Type: Firm Fixed Price		
5.	Procurement Dates:		
	A. Issued: N/A		
	B. Advertised: N/A		
	C. Pre-proposal Conference: N/A		
	D. Proposals Due: N/A		
	E. Pre-Qualification Completed: N/A		
	F. Conflict of Interest Form Submitted to Ethics: N/A		
6.	Small Business Participation:		
	A. Bid/Proposal Goal: 3% DBE Goal	Date Small Business Evaluation Completed: January 31, 2002	
	B. Small Business Commitment: 5.65% Details are in Attachment A-2		
7.	Invitation for Bid/Request for Proposal Data:		
	Notifications Sent: N/A	Bids/Proposals Picked up: N/A	Bids/Proposals Received: N/A
8.	Evaluation Information: N/A		
	B. Evaluation Methodology: N/A Details are in Attachment A-1.C		
9.	Protest Information:		
	A. Protest Period End Date: N/A		
	B. Protest Receipt Date: N/A		
	C. Disposition of Protest Date: N/A		
10.	Contract Administrator: Donald C. Dwyer	Telephone Number: 922-6387	
11.	Project Manager: Jane Matsumoto	Telephone Number: 922-3045	

BOARD REPORT ATTACHMENT C-1 PROCUREMENT HISTORY

CONTRACTED SERVICES

A. Background on Contractor

Cubic Transportation Systems, Inc. (Cubic), a wholly owned subsidiary of Cubic Corporation, is located in San Diego, California. Cubic has been in business since 1949. Cubic specializes in two areas of business: Defense and Transportation. Cubic is currently under contract with the METRO to replace and install a new fare collection system. Cubic is a recognized leader in fare collection equipment and systems having provided equipment for transit agencies throughout the United States and the World.

B. Procurement Background

During the February 2002 Board Meeting, the METRO Board awarded the Universal Fare System (UFS) Contract to Cubic Transportation Systems, Inc. Over the past four years, Cubic has been designing and installing replacement fare collection equipment for Metro bus divisions and rail stations. Equipment for contracted service operators was not included as part of the original contract.

C. Evaluation of Proposals

On October 31, 2008 Cubic submitted an unsolicited proposal for on-going system support services. This was done in anticipation of the April 30, 2009 expiration of system maintenance. A technical review of the unsolicited proposal was performed and it was determined that several features offered were not currently required. Booz-Allen & Hamilton is currently preparing a detailed technical specification which will be used to solicit firm, fixed pricing. The new firm, fixed price proposal will be audited and evaluated when received. The NTE amount is based on estimated costs provided by Cubic and takes into consideration the expansion of services required by the opening of Metro Gold Line, East Extension and by the Exposition Line.

D. Cost/Price Analysis Explanation of Variances

The final Change Order amount, once determined, will be fair and reasonable based upon audit and negotiation.

**BOARD REPORT ATTACHMENT C-2
LIST OF SUBCONTRACTORS**

UNIVERSAL FARE SYSTEM

SMALL BUSINESS PARTICIPATION

This Contract has a DBE commitment of 5.65%. The contract was awarded in March 13, 2002 to Cubic Transportation Systems, Inc. and is 92% complete. Current DBE attainment¹ based on the current contract amount² is 4.74%. Current DBE participation³ based on the amount paid-to-date to the contractor and total actual amount paid-to-date to DBEs is 5.41%. Each of the listed DBE subcontractors is performing on the Contract as listed.

Original Award Amount	\$ 84,003,444
Current Contract Value²	\$ 108,554,859
Total Actual Amount Paid to Date to Prime	\$ 94,956,657

Subcontractor	Commitment	Current Attainment ¹	Current Participation ³	Current Status
American Alloy Fabrication, Inc.	.25%	.73%	.84%	Performing
Lows Enterprises, Inc.	.13%	.09%	.10%	Performing
Priority MFG., Inc.	.94%	.47%	.53%	Performing
Robnett Electric	2.53%	2.37%	2.71%	Performing
TechProse	.40%	.16%	.18%	Performing
J-Tec Metal Products	.13%	.08%	.09%	Performing
KLJ, Inc.	.25%	.22%	.25%	Performing
Komex	1.02%	.62%	.71%	Performing
TOTAL	5.65%	4.74%	5.41%	Expected to achieve

¹Current Attainment = Total Actual Amount Paid-to-Date to DBE Subs ÷ Total Current Contract Amount

³Current Participation = Total Actual Amount Paid-to-Date to DBE Subs ÷ Total Actual Amount Paid-to-Date to Prime

**BOARD REPORT ATTACHMENT D
PROCUREMENT SUMMARY**

APPROVE UNIVERSAL FARE SYSTEM (UFS) CONTRACT MODIFICATIONS

1.	Contract Number: PS-4610-1026		
2.	Recommended Vendor: Booz Allen & Hamilton, Inc.		
3.	Cost/Price Analysis Information:		
	A. Bid/Proposed Price: NTE \$2.6M	Recommended Price: NTE \$2.6M	
	B. Details of Significant Variances are in Attachment A-1.D		
4.	Contract Type:		
5.	Procurement Dates:		
	A. Issued: N/A		
	B. Advertised: N/A		
	C. Pre-proposal Conference: N/A		
	D. Proposals Due: N/A		
	E. Pre-Qualification Completed: N/A		
	F. Conflict of Interest Form Submitted to Ethics: N/A		
6.	Small Business Participation:		
	A. Bid/Proposal Goal: 13.80% DBE Goal	Date Small Business Evaluation Completed: March 17, 2003	
	B. Small Business Commitment: 13.80% Details are in Attachment B-2		
7.	Invitation for Bid/Request for Proposal Data:		
	Notifications Sent: N/A	Bids/Proposals Picked up: N/A	Bids/Proposals Received: N/A
8.	Evaluation Information: N/A		
	B. Evaluation Methodology: N/A		
9.	Protest Information:		
	A. Protest Period End Date: N/A		
	B. Protest Receipt Date: N/A		
	C. Disposition of Protest Date: N/A		
10.	Contract Administrator: Donald C. Dwyer	Telephone Number: 922-6387	
11.	Project Manager: Jane Matsumoto	Telephone Number: 922-3045	

**BOARD REPORT ATTACHMENT D-1
PROCUREMENT HISTORY**

APPROVE UNIVERSAL FARE SYSTEM (UFS) CONTRACT MODIFICATIONS

A. Background on Contractor

Booz-Allen & Hamilton (BAH) has provided technical consultation to the METRO on fare collection since the inception of the METRO's automated fare collection systems. BAH's involvement includes the drafting of the UFS technical specification, UFS implementation management services, technical oversight of the UFS Program and various studies related to fare collection. BAH is a recognized leader in the design and management of fare collection systems throughout the world.

B. Procurement Background

In February 2001, the METRO Board approved a non-competitive contract with BAH for UFS Implementation Management Services.

Modification No. 12: BAH submitted a proposal to provide additional technical support related to the following areas:

- Congestion Pricing
- Metrolink Integration
- Local Transit Service Systems
- Metro Rail Expansion, Installation Oversight & Integration of Rail Gates

C. Evaluation of Proposals

The hours proposed and the distribution of labor is appropriate to the work and is determined to be technically acceptable. Pricing is based on the same Cost Plus Fixed Fee basis as the original award.

D. Cost/Price Analysis Explanation of Variances

The recommended price has been determined to be fair and reasonable based upon cost analysis. Actual costs are subject to an incurred cost audit and may be adjusted based on audit findings.

**BOARD REPORT ATTACHMENT D-2
LIST OF SUBCONTRACTORS**

**UNIVERSAL FARE SYSTEM (UFS) IMPLEMENTATION
Contract Number: PS-4610-1026**

SMALL BUSINESS PARTICIPATION

Metro's DBE participation goal was 7.10%. The contract was awarded in April 1, 2001 to Booz Allen, Inc. with a DBE commitment of 13.80%. As of February 2009 the project is approximately 98.2% complete. DBE attainment¹ based on the current contract amount² is approximately 7.46%. DBE participation³ based on total amount paid to the contractor and total amount paid to DBE's is approximately 8.15%. Contract is being reviewed for compliance.

Original Award Amount	\$ 4,499,557
Current Contract Value²	\$ 9,424,309
Total Dollar Value Paid	\$ 8,636,429

Subcontractor	% Commitment	Current Attainment¹	Current Participation³	Current Status
Acumen Building Enterprises	4.67 %	3.12 %	3.41 %	Performing
Eiger TechSystems	3.49 %	2.89 %	3.15 %	Performing
LKG-CMC Inc.	5.64 %	1.45 %	1.59 %	Performing
TOTAL	13.80 %	7.46 %	8.15 %	Expected to Achieve

¹Current Attainment = Total Actual Amount Paid-to-Date to DBE Subs ÷ Total Current Contract Amount

³Current Participation = Total Actual Amount Paid-to-Date to DBE Subs ÷ Total Actual Amount Paid-to-Date to Prime

ARTICLE 1. PURPOSE AND PROJECT

1. Purpose

The intent of this Memorandum of Understanding ("MOU") is to:

- A) Delineate the roles and responsibilities of SCRRA and Metro in the development and implementation of a Metrolink ticketing solution that enables Metrolink customers to activate and pass through electronic gates to be installed on the Metro rail system and board TAP-enabled buses, and;
- B) Memorialize the commitment of SCRRA to provide funding to Metro for the professional consulting services of Booz Allen Hamilton (hereinafter referred to as "Booz"), Metro's TAP/Gating project manager, and other consultants as required and approved in writing by SCRRA for work required for the Project, as described below.

2. Project

The Project consists of the development and implementation of a ticketing solution utilizing SCRRA's ACS Ticket Vending Machines ("TVMs"), Metro's Cubic Gates/TAP systems, and other systems as required to facilitate Metrolink customers' entry onto gated and TAP-enabled Metro rail, Metro bus, and other TAP-participating transit systems in Los Angeles County. This development and implementation work will be further described in the Concept of Operations, which is hereinafter incorporated by reference.

The Project includes the project management consultant cost to review the development, design, manufacture, and implementation of an integrated ticketing solution between the SCRRA-owned ACS TVMs, Metro-owned CUBIC gating and TAP system, and other systems as required.

ARTICLE 2. ROLE AND RESPONSIBILITIES OF METRO AND ITS CONSULTANTS

3. Scope of Work

Metro will be responsible for managing Metro's consultants and Cubic work efforts required for timely implementation of the ticketing solution project as outlined below. Metro's project management consultant team of Booz Allen Hamilton, with subcontractor Alinc Consulting, Inc., and other subcontractors ("Booz") are responsible for preparation of the project specifications documents, definition of system architecture, project management, and timely delivery of the project technology integration.

A) Initial Phase

In support of working to achieve timely project integration, Metro and its consultants and contractors shall participate in monthly joint interface development meetings with SCRRA and its consultants and contractors.

Metro/Booz shall prepare performance specifications document for build-to hardware, software and interface, system components, smart card ticket stock, TAP network, communications protocols, and other industry standards as defined in the Booz technical specification for the Metro TAP/Gating project, required for operations, maintenance, and potential upgrades, of the Metrolink-owned ACS ticketing equipment, the Metro-owned Cubic TAP/Gating equipment, and other equipment as required.

Metro/Booz shall prepare a high level design (provides enough detail that component parts, and internal and external interfaces can be designed, built, or procured): review system architecture, sub-systems, internal and external interfaces, interface standards, and conceptual design review. The specifications and high level design prepared by Booz shall be of sufficient detail so that the system vendors of ACS, Cubic, and other vendors as required may prepare cost estimates and bid documents for completing the project as specified.

Metro/Booz shall be responsible for reviewing for completeness, compliance, and adherence to the performance specifications of a systems engineering management plan prepared by ACS, Cubic, and other vendors as required that identifies the technical plans for the project. The systems engineering plan shall include, but not be limited to: an interface control plan, a system integration plan, a verification plan, a validation plan, software and hardware plans, an installation plan, an ADA compliance plan, and operations and maintenance plans, which adhere to industry standards including but not limited to: software design standards, network communication standards, data exchange & communications standards, hardware standards, general security standards (key generation, card distribution & inventory control, hot lists, fraud protection, card replacement), and payment card industry data security (PCI) compliance standards.

Metro/Booz shall evaluate the reasonableness of the cost proposals submitted by ACS, Cubic, and other vendors as required

in response to the specifications, prepare a report of the findings, and develop a project, working jointly with Metrolink and Metro.

Based on the proposed systems engineering plan, Metro/Booz shall prepare a project schedule, including key milestones for project implementation, and be responsible for capital project management oversight.

Metro and/or Booz will prepare monthly progress reports and quarterly invoices for progress payments. Metro will retain supporting documentation for work completed by consultant team for audit and inspection.

B. Second Phase

Metro/Booz shall review for completeness and recommend changes as necessary to the project configuration control document management plan prepared by ACS, Cubic, and other vendors as required. The configuration control plan shall identify at a minimum, the tools used, software versions and hardware upgrade configurations, system as-built drawings, and software source code.

Metro/Booz shall prepare a high level train the trainer plan for equipment maintenance and revenue servicing staff.

Metro/Booz shall develop a maintenance plan that identifies vendor and agency roles and responsibilities, spare parts requirements, and project performance standards.

Metro/Booz shall develop a systems acceptance plan and systems integration test plan, and provide oversight of systems testing by project vendors prior to project launch.

4. Use of Funds

Funding provided by SCRRA to Metro is to be used exclusively on the Project for Metrolink ticketing integration related design, engineering, oversight, planning, and project management, including the preparation of specifications for ACS equipment modifications, Cubic equipment modifications, and other equipment modifications as required that are necessary for system integration, to be completed by Metro's project consulting team of Booz Allen Hamilton, with subcontractor Alinc Consulting, Inc., and other consulting services as needed. Metro shall submit quarterly invoices to Metrolink for payment, based on actual work performed by the project's consulting team during the invoice period.

5. Consultant Key Personnel

The key consultant personnel assigned to this project include Pat Marron, Project Manager, Booz Allen Hamilton and Al Chan, Technical Lead, Alinc Inc. Changes in the key consultant personnel shall be mutually agreed upon in writing by SCRRA and Metro prior to the replacement of any key personnel identified in this MOU.

ARTICLE 3. ROLE AND RESPONSIBILITIES OF SCRRA

6. Scope of Work

SCRRA will be responsible for managing the Metrolink ACS and other SCRRA project consultant work efforts required for timely implementation of the ticketing solution project as outlined below:

A) Initial Phase:

SCRRA will be responsible for managing the SCRRA Project consultants and ACS work efforts required for timely implementation of the ticketing solution project.

In support of working to achieve timely project integration, SCRRA and its consultants and contractors shall participate in monthly joint interface development meetings with Metro and its consultants and contractors.

7. Payment

SCRRA will pay Metro an amount not-to-exceed \$200,000 for FY2008-09 and will seek budget authority of up to an additional \$300,000 for FY2009-10 contingent on a decision by the SCRRA Board of Directors to implement the program. The total not-to-exceed cost for the professional services scope of work in this MOU is \$500,000. Payment shall be made on a quarterly basis as further outlined in Paragraph 4.

ARTICLE 4. RESPONSIBILITIES OF SCRRA AND METRO

8. Concept of Operations

SCRRA and Metro shall jointly participate in development of a Concept of Operations, incorporating analysis of Metrolink requirements for fare policy, use cases, and business rules and existing-owned ticketing infrastructure (TVM, communications network, etc.). Changes to the Concept of Operations shall be

made upon mutual agreement of and with Metro, and incorporated by reference into this MOU.

9. Timely Project Integration

SCRRA and Metro mutually agree to work in cooperation to achieve timely project integration, with the understanding that the Project is not a critical path element for the overall Metro Rail gating installation.

ARTICLE 5. OTHER PROVISIONS

10. Term of Agreement

The term of this MOU is from July 1, 2008 through June 30, 2010, or through final project implementation, whichever occurs first, unless amended by mutual written agreement of both parties.

11. Termination for Convenience

Either party may terminate this MOU for convenience at any time by giving thirty (30) calendar days written notice thereof. SCRRA shall pay Metro its reasonable and allowable costs through the effective date of termination and those reasonable and necessary costs incurred by Metro to effect such termination.

12. Amendments and Notices

Any changes in the terms of this MOU shall be agreed to in writing. Any notice under or in connection with this MOU shall be in writing and delivered to:

SCRRA
700 S. Flower Street 26th Floor
Los Angeles, CA 90017
Attention: Elizabeth Mahoney
Phone: 213 452-0259

Metro
One Gateway Plaza MS 99-4
Los Angeles, CA 90012
Attention: Jane Matsumoto
Phone: 213 922-3045

13. Non-Disclosure Agreement

All project work engaged in by SCRRA, SCRRA's consultants and vendors, Metro, and Metro's consultants and vendors shall be subject to the terms and conditions of the project non-disclosure agreement dated April 28, 2008.

14. Force Majeure

Performance of each and all SCRRA's and Metro's covenants herein shall be subject to such delays as may occur without SCRRA's or Metro's fault from acts

of God, strikes, riots, or from other similar causes beyond SCRRA's or Metro's control.

15. Governing Law

The validity of this MOU and of any of its terms or provisions, as well as the rights and duties of the parties hereunder, shall be governed by the laws of the State of California.

16. Entire Agreement

This MOU, and any attachments or documents incorporated herein by inclusion or by reference, constitutes the complete and entire agreement between SCRRA and Metro, and supersedes any prior representations, understandings, communications, commitments, agreements or proposals, oral or written.

17. Indemnification

The SCRRA shall indemnify, defend, and hold harmless Metro free from and against any and all liability and expense (including but not limited to reasonable defense costs and reasonable attorneys' fees), claims, causes of action, and lawsuits for damages of any nature whatsoever, including, but not limited to bodily injury, death, personal injury or property damage arising from or connected with any alleged act, omission, negligence or willful misconduct arising out of this MOU.

The Metro shall indemnify, defend, and hold harmless SCRRA free from and against any and all liability and expense (including but not limited to reasonable defense costs and reasonable attorneys' fees), claims, causes of action, and lawsuits for damages of any nature whatsoever, including, but not limited to bodily injury, death, personal injury or property damage arising from or connected with any alleged act, omission, negligence or willful misconduct arising out of this MOU.

18. Severability

If any term, provision, covenant, or condition of this MOU is held to be invalid, void, or otherwise unenforceable, to any extent, by any court of competent jurisdiction, the remainder of this MOU shall not be affected thereby, and each term, provision, covenant, or condition of this MOU shall be valid and enforceable to the fullest extent permitted by law.

19. Counterparts of MOU

This MOU may be executed and delivered in any number of counterparts, each of which, when executed and delivered shall be deemed an original, and all of

which together shall constitute the same agreement. Facsimile signatures will be permitted.

20. Assignment

Neither this MOU, nor any of the parties rights, obligations, duties, or authority hereunder may be assigned in whole or in part by either party without the prior written consent of the other party in its sole, and absolute, discretion. Any such attempt of assignment shall be deemed void and of no force and effect. Consent to one assignment shall not be deemed consent to any subsequent assignment, nor the waiver of any right to consent to such subsequent assignment.

IN WITNESS THEREOF, the Parties have caused this MOU to be executed on the date shown below, and effective on the date first hereinabove written.

SOUTHERN CALIFORNIA
REGIONAL RAIL AUTHORITY

David Solow, Chief Executive Officer

Date

LOS ANGELES COUNTY METROPOLITAN
TRANSPORTATION AUTHORITY

Roger Snoble, Chief Executive Officer

Date

APPROVED AS TO FORM FOR SCRRA

Raymond G. Fortner, Jr., County Counsel

Deputy

APPROVED AS TO FORM FOR METRO

Raymond G. Fortner, Jr., County Counsel

Deputy