

**Board Report****File #:** 2023-0275, **File Type:** Contract**Agenda Number:** 7.**FINANCE, BUDGET AND AUDIT COMMITTEE
JULY 19, 2023****SUBJECT: STATE-OF-THE-ART BUS MOBILE VALIDATORS FOR TAP MUNICIPAL OPERATORS****ACTION: APPROVE CONTRACT MODIFICATION****RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to execute Modification No. 165.01 to Contract No. OP02461010 with Cubic Transportation Systems, Inc. ("Cubic"), for the purchase and installation of 1,118 new state-of-the-art Bus Mobile Validators (BMVs) for the 21 Regional municipal operators and muni transit stores and special events, in the amount of \$4,032,850, increasing the total contract value from \$401,615,864 to \$405,648,714.

ISSUE

The Bus Mobile Validator, or BMV, is a low-cost solution that was developed to make it possible for all agencies in LA County that collect fares to join TAP. In October 2012, the Board approved the purchase of 1,000 BMVs for installation on 750 buses for 15 municipal operators so that they could accept TAP fare payment. The BMVs have proven to be a low-cost solution that has allowed both small and large agencies to participate in a seamless fare payment system for LA County. Now over 10 years old, the aging BMVs have exceeded their life expectancy and are no longer manufactured. In addition, the new state-of-the-art BMVs will accommodate open payment technology (use of credit/debit and other ID cards) and will read barcodes for events or Metrolink ticketing.

BACKGROUND

Initial BMV installations were on 15 municipal operators. The number of agencies using BMVs has now increased to 21, this includes Antelope Valley Transit Authority (Microtransit), Baldwin Park Transit, Burbank Bus, Carson Circuit, Compton Renaissance Transit, Glendale Beeline, Glendora Transit, Huntington Park Transit Unlimited, LA County Department of Public Works, Long Beach Transit, Los Angeles World Airports (FlyAway), Monterey Park Spirit Bus, Palos Verdes Peninsula Transit Authority, Pasadena Transit, Redondo Beach Cities Transit, Santa Clarita Transit (Microtransit), Santa Monica Big Blue Bus, Foothill Transit's transit store, UCLA Transportation Office, and even Angel's Flight. The BMVs have allowed both small and large operators the ability to accept TAP fare payment and ensure the Region's customers can travel seamlessly throughout LA County on 26 different transit agencies with a plastic or virtual TAP card.

In June 2016, Metro successfully piloted All-Door Boarding (ADB) with BMVs on the front and rear doors of J Line (Silver) 910/950 buses. In 2018, Metro expanded the ADB pilot to Metro Rapid Lines 720 and 754. With ADB, customers can now board the front and rear doors simultaneously reducing dwell times.

In February 2022, the Board approved the purchase of 2,900 state-of-the-art BMVs to expand rear-door boarding to all Metro buses. This contract modification allows the Region to continue on the same TAP system, to provide customers with seamless travel on all 26 TAP partner agencies, including Metro, across Los Angeles County. With Board approval, installations on municipal operator's buses can begin as early as August 2024.

DISCUSSION

This contract modification calls for the purchase and installation of 1,118 new state-of-the-art BMVs for the 21 Regional municipal operators and muni transit stores and for special events. Refer to Attachment D for a detailed listing of BMV quantities for each agency. The new state-of-the-art BMVs utilize 4G LTE cellular communications and are ready to operate in an open payment, account-based system. Open payment and account-based systems can be programmed to accept credit/debit and other ID cards as payment. The new devices offer enhanced transaction security and are certified by the Payment Card Industry Data Security Standard (PCI DSS) and Europay, MasterCard, and Visa (EMV) global standard. Attachment E provides additional specifications on the new BMVs.

The new BMVs have expanded capacity to deliver 100,000 autoloads every 10 minutes compared to the existing BMVs which can only deliver 30,000 autoloads every 30 minutes. In addition, the new state-of-the-art BMVs will operate faster and accommodate open payment technology (use of credit/debit and other ID cards) and will read barcodes for events or Metrolink ticketing. The new BMVs will continue to serve Metro's and the Region's current programs such as GoPass, Low Income Fare is Easy (LIFE), and fare capping. BMVs also accept Stored Value (cash) and the Regional EZ transit pass which provides customers with seamless travel on all 26 TAP partner agencies across Los Angeles County. The BMVs are also necessary for TAP customers to benefit from fare capping and regional fare capping in the future.

FINANCIAL IMPACT

The \$500,000 required for this contract modification is included in the FY2024 Adopted budget. This is a multi-year activity, and the Senior Executive Officer and Executive Officer of TAP are responsible for budgeting all future year budget requirements.

Impact to Budget

In May 2023, the Board approved the total Life-of-Project budget of \$4,912,000 for the Muni BMV Replacement project through the annual budget adoption. The funds are comprised of \$2,456,000 from Local Partnership Program Formulaic grant funds and matching \$2,456,000 from Proposition C40% Discretionary funds. The local match is eligible for Metro's bus and rail capital and operations activities.

EQUITY PLATFORM

BMVs on municipal operator buses allow customers to take advantage of fare programs such as FSI/GoPass, LIFE, and other fare programs available to customers with virtual or plastic TAP cards. BMVs also accept Stored Value (cash) and the Regional EZ transit pass which provides customers with seamless travel on all 26 TAP partner agencies across Los Angeles County. The BMVs are also necessary for TAP customers to benefit from fare capping and regional fare capping in the future.

The new state-of-the-art BMV ensures continued seamless fare payment throughout Los Angeles County on 26 transit agencies and is ready to accommodate open payment and an account-based system to accept credit/debit and other ID cards as valid fare.

Customers can purchase and reload TAP cards at about 1,900 TAP vendor locations, including locations for non-English speaking customers, throughout LA County and at nearby TAP Vending Machines (TVMs) along the Metro Rail system, J Line, and select G Line stations. Customers can also use virtual TAP cards on their mobile phones via the TAP app, or they purchase a TAP card and reload it on Metro buses.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendation supports:

- Strategic Plan Goal 1: Provide high quality mobility options that enable people to spend less time traveling
- Strategic Plan Goal 2: Deliver outstanding trip experience for all users of the transportation system. This project will improve the speed and reliability of TAP Card users across agency riders through the heart of some of the most congested areas in Los Angeles County with some of the most equity focused communities.

ALTERNATIVES CONSIDERED

The alternative to the proposed staff recommendation is to not procure the new BMVs. This alternative is not recommended because these units are no longer manufactured, and Metro will not be able to add additional transit services or allow for the expansion of buses for existing TAP partner agencies.

NEXT STEPS

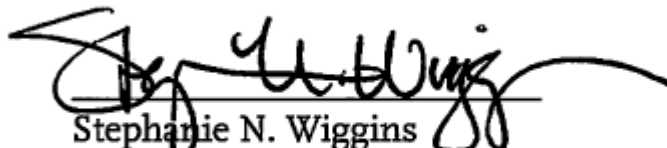
Upon Board approval, staff will execute Modification No. 165.01 to Contract No. OP02461010 with Cubic Transportation Systems, Inc., for the purchase and installation of the new state-of-the-art BMVs and extend a limited notice-to-proceed to the vendor to order the new state of the art BMVs. Delivery of the BMVs will occur in July 2024. Installation of Muni BMVs will begin in August 2024 and conclude by November 2024.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - Contract Modification/Change Order Log
Attachment C - DEOD Summary
Attachment D - Detailed Listing of BMV Quantities for Agencies
Attachment E - Cubic Bus Mobile Validator 3.0 Specifications

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Stephanie N. Wiggins
Chief Executive Officer

PROCUREMENT SUMMARY

UNIVERSAL FARE SYSTEM / OP02461010

1.	Contract Number: OP02461010			
2.	Contractor: Cubic Transportation Systems, Inc.			
3.	Mod. Work Description: Purchase and Installation of State-of-the-art Bus Mobile Validators (BMVs) for Municipal Operators			
4.	Contract Work Description: Universal Fare System			
5.	The following data is current as of: June 21, 2023			
6.	Contract Completion Status		Financial Status	
	Contract Awarded:	2/28/2002	Contract Award Amount:	\$84,003,444
	Notice to Proceed (NTP):	3/7/2002	Total of Modifications Approved:	\$321,645,270
	Original Complete Date:	9/1/2007	Pending Modifications (including this action):	\$4,032,850
	Current Est. Complete Date:	12/31/2024	Current Contract Value (with this action):	\$405,648,714
7.	Contract Administrator: Anush Beglaryan		Telephone Number: (213) 418-3047	
8.	Project Manager: Mauro Arteaga		Telephone Number: (213) 922-2953	

A. Procurement Background

This Board Action is to approve Contract Modification No. 165.01 for the purchase and installation of state-of-the-art Bus Mobile Validators (BMVs) for municipal operators including spares to accommodate operational deployment and fleet expansion.

In October 2012, the Board approved the purchase of 1,000 BMVs for installation on 750 buses for 15 municipal operators so that they could accept TAP fare payment. The BMVs have proven to be a low-cost solution that has allowed both small and large agencies to participate in a seamless fare payment system for LA County. The aging BMVs have exceeded their life expectancy and are no longer manufactured. Additionally, 3G cellular communication of the first generation BMVs will no longer be supported by the Telephone Service Provider (TSP). The new state-of-the-art BMVs will accommodate open payment technology (use of credit/debit and other ID cards) and will read barcodes for event or Metrolink ticketing. This Modification will allow for new state-of-the-art BMVs to be installed on buses for the 21 regional municipal operators.

ATTACHMENT A

This Contract Modification will be processed in accordance with Metro's Acquisition Policy.

On February 28, 2002, Contract No. OP02461010 was awarded by the Metro Board to Cubic to provide a countywide fare collection system to serve Metro's public transit customers. Cubic developed the NextFare software application and related databases which is the core technology managing the entire TAP network consisting of bus and rail equipment and devices. NextFare communicates with all of the fare collection devices which contain proprietary intellectual property. Therefore, Cubic is the only company that can provide and maintain the necessary upgrades of the software and hardware.

Please refer to Attachment B – Contract Modification/Change Order Log.

B. Price Analysis

The recommended price has been determined to be fair and reasonable based upon price analysis, technical evaluation, and independent cost estimate. Pricing for BMVs is unchanged from previous years.

Proposal Amount	Metro ICE	Recommended Amount
\$4,032,850	\$4,032,850	\$4,032,850

CONTRACT MODIFICATION/CHANGE ORDER LOG

UNIVERSAL FARE SYSTEM / OP02461010

Mod. No.	Description	Status (approved or pending)	Date	Amount
1	Table X-1 Milestone Changes	Approved	8/19/2002	\$0.00
2	Ticket Vending Machine Soft Keys	Approved	9/4/2002	\$0.00
3	San Fernando Valley BRT, Additional Quantities	Approved	4/13/2004	\$7,454,844
4	Modification to General Conditions	Approved	10/8/2002	\$0.00
5	TVM Third Coin Hopper	Approved	8/22/2003	\$416,858
6	Stand Alone Validator Video Clips	Approved	3/3/2003	\$0.00
7	Gold Line Functional Test Waiver	Approved	2/13/2003	\$0.00
8	Languages Supported	Approved	2/13/2004	\$0.00
9	Modifications to Compensation & Payment	Approved	2/20/2003	\$0.00
10	Smart Card to Smart Card Value Transfer	Approved	3/3/2003	\$0.00
11	SCADA Cable Installation on Gold Line	Approved	3/3/2003	\$48,476
12	Gold Line Functional Test Waivers	Approved	4/8/2003	\$0.00
13	Farebox Coin Dejam	Approved	4/8/2003	\$0.00
14	Change in Milestone Schedule	Approved	4/16/2003	\$0.00
15	Time Extension, Gold Line	Approved	7/1/2003	\$0.00
16	Change from Datastream MP5 to Express Metrix	Approved	7/1/2003	\$0.00
17	Final Design Review, changes in CDRLS	Approved	7/18/2003	\$0.00
18	Deletion of Printer from Hand Held Validator	Approved	1/6/2004	-\$35,252
19	Variable Message Sign	Approved	2/19/2004	\$243,828
20	Changes to Compensation and Payment	Approved	4/7/2004	\$0.00
21	PCMCIA Card Slot use for WAN	Approved	4/13/2004	\$0.00
22	Data Transmission System	Approved	6/22/2004	\$675,000
23	Mifare Card Initialization and Verification	Approved	6/8/2004	\$9,629
24	Farebox Mounting Adapter for NABI Buses	Approved	7/9/2004	\$32,485
25	Provide Regional CDCS	Approved	2/25/2005	\$5,348,335
25.01	Regional CDCS Overhead Rate Adjustment	Approved	1/17/2007	-\$31,621
25.02	Regional CDCS Acceptance Test Participants	Approved	8/7/2008	\$0.00
26	Remove Requirement for Focus Groups	Approved	12/20/2004	-\$111,704
27	Farebox Rotation	Approved	1/4/2005	\$74,967
28	Metro Gold Line Eastside Extension, Fare Equipment	Approved	7/25/2006	\$3,808,722

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29	Stainless Steel Panels for TVM Alcoves	Approved	4/25/2005	\$45,521
30	Data Communication Cabling for Orange Line	Approved	6/10/2005	\$41,560
31	(Not Used)			
32	Additional Spare Part Quantities for Eastside Ext.	Approved	7/25/2005	\$15,480
33	Mifare Card Functionality on UFS	Approved	8/15/2005	\$33,105
34	Revisions to Project Schedule	Approved	10/26/2000	\$0.00
35	OCU Mount	Approved	11/15/2005	\$87,634
36	(Not Used)			
37	Deductive Change for Line 1.36	Approved	4/6/2007	-\$33,116
38	Installation of Third TVM and Relocation of Two SAVs and Blue Line Willow Station	Approved	7/6/2006	\$10,084
39	Upgrade the CDCS System from IB SSA Disk Storage Subsystem to Fiber Disk	Approved	10/2/2006	\$20,000
40	UFS Equipment for Expo Line	Approved	2/16/2007	\$5,197,204
41	(Not Used)			
42	(Not Used)			
43	HHV, PMOS and CPOS Interim Maintenance Deductive Change	Approved	2/16/2007	-\$162,628
44	UFS Additional Quantities for Contracted Services	Approved	2/16/2007	\$2,499,916
45	Replace Go-Cards with Mi-Fare Cards	Approved	2/16/2008	-\$1,157,850
46	Relocation of Data Probes and Receive Vaults at Division 7	Approved	4/9/2007	\$29,787
47	Revisions to US Base and Regional Manuals for Release to ACS	Approved	4/23/2007	\$46,000
48	Expo Line, Pico Station Infrastructure	Approved	7/18/2007	\$18,542
49	Relocation of UFS Lab Equipment	Approved	6/2/2008	\$106,905
50	Expo 7 th and Metro Additional Infrastructure	Approved	8/30/2007	\$81,719
50.01	Expo 7 th and Metro Infrastructure Deductive change	Approved	8/30/2007	-\$30,173
51	Handheld Validator Holster	Approved	10/16/2007	\$6,184
52	Installation and Testing of Farebox at Transportation Concepts	Approved	3/6/2008	\$16,091
53	Relocate OCUs on Ford Cutaways and MST Buses at Contracted Services	Approved	5/14/2008	\$79,170
54	Installation of one Farebox and Testing for two Fareboxes at Contracted Services	Approved	5/27/2008	\$18,842
55	UFS Quantity Adjustments	Approved	10/9/2008	\$0.00
56	Contracted Bus Service Equipment Change	Approved	12/3/2008	\$36,704
57	Installation and Acceptance Testing of One Farebox at First Transit	Approved	12/19/2008	\$3,040

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58	Provide UFS Equipment for Expo from Culver City to Venice/Robertson Aerial Station	Approved	3/4/2009	\$304,246
59	Regional CDCS Electrical Power Reconfiguration	Approved	2/9/2009	\$17,186
60	Rail Equipment Warranty and Bus Equipment Warranty	Approved	2/19/2009	\$0.00
61	TAP Enables Turnstile Fare Gates for Rail Stations	Approved	4/9/2009	\$10,000,000
62	Provide UFS Equipment for Expo Truesdale Station	Approved	3/4/2009	\$284,167
63	System Support Services	Approved	6/8/2010	\$33,988,558
63.01	SSS, Additional Costs	Approved	3/22/2013	\$677,631
63.02	SSS, Orange Line Credits	Approved	3/22/2013	-\$58,243
63.03	SSS, One-year Extension	Approved	3/22/2013	\$8,148,263
64	\$5 Dollar Bill handling Unit for Fareboxes and TVMs	Approved	7/27/2009	\$304,658
65	Installation of Additional SAVs for Eastside Extension	Approved	1/4/2010	\$34,077
66	Relocation of Wing Gate at MRL Wilshire/Normandie Station	Approved	2/2/2010	\$18,905
67	(Not Used)	Approved		
68	UFS Equipment for Orange Line Extension	Approved	11/2/2010	\$2,749,476
68.01	Transfer Maintenance Dollars to 63.01	Approved	1/25/2013	-\$677,631
68.02	UFS Equipment for Orange Line Extension, Credits	Approved	3/22/2013	-\$10,982
69	Additional TVM at Aviation Greenline Station	Approved	4/2/2010	\$13,031
70	TAP Card Physical Testing	Approved	4/28/2010	\$41,844
70.01	TAP Card Physical Testing	Approved	3/22/2013	\$12,658
71	Concession Light Functionality	Approved	6/30/2010	\$96,726
72	(Not Used)	Approved		
73	API Test Server Imaging	Approved	9/9/2010	\$45,024
74	Contract Services Relocation	Approved	11/1/2010	\$33,854
75	Limited Function Sales Office Terminals, Increase Quantity	Approved	2/15/2011	\$993,795
76	CISCO ASA Acquisition and Implementation for API Test and Production Servers	Approved	2/28/2011	\$59,209
77	Cubic LU Key Installation	Approved	3/3/2011	\$69,097
78	Updates Farebox Configuration to Support ARUB Wireless Security Data Transfer	Approved	3/3/2011	\$40,204
79	Relocation of UFS Test Lab Equipment	Approved	4/25/2011	\$80,911
80	7 Byte UID Support	Approved	4/20/2011	\$362,069

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81	Fare Gate Fencing Installation Modifications, North Hollywood and Avalon Stations	Approved	4/25/2011	\$24,004
82	Additional TVM at Hollywood/Western Redline Station	Approved	4/25/2011	\$15,531
83	Purchase Drive Control Unit Light Validators DCU-LV	Approved	4/25/2011	\$363,492
84	Install TVMs at Three Metro customer Centers	Approved	6/6/2011	\$386,680
85	Cubic Modification to Gate Software/Locking Commands	Approved	6/29/2011	\$111,188
86	UFS Equipment for Expo Phase I Farmdale Station	Approved	7/26/2011	\$415,184
87	Relocation of TVMs at the Green Line Long Beach Station	Approved	8/25/2011	\$15,909
88	Mobile Validator Non-Recurring Engineering System Development	Approved	10/12/2011	\$611,677
89	Expo Pico Station North Platform TVM/SAV Work	Approved	3/5/2012	\$17,592
90	Deletion of Contract Line Items 1.03, 1.04 & 1.33	Approved	2/15/2012	-\$20,622
91	Orange Line Installation of 12 Metro Provided SAVs	Approved	2/15/2012	\$34,483
92	(Not Used)			
93	(Not Used)			
94	System Support Services, Six Year Extension	Approved	7/1/2013	\$55,000,000
94.01	(Not Used)			
94.02	System Support Services for Expo II and Foothill Extension	Approved	3/2/2015	\$1,152,749
94.03	Maintenance Support Services for 54 TVMs	Approved	4/14/16	\$838,211
95	UFS Equipment Storage Costs	Approved	6/13/2012	\$4,129
96	Faregating, Three Additional Swing Gates	Approved	2/4/2013	\$44,611
97	Green Line Faregating Additional Fire Key Switches at Vermont Station	Approved	4/1/2013	\$8,392
98	Emergency Swing Gate Upgrades	Approved	4/15/2013	\$252,145
99	Removal of TVM from Wilshire/LaBrea Customer Center	Approved	10/8/2013	\$4,883
100	Supplying and Supporting a Turn Key Mobile Validator System	Approved	7/1/2013	\$2,996,113
101	Bus Division Vault Relocation	Approved	8/1/2013	\$995,940
102	Install One TVM at East Portal Customer Service Center and One at Culver City Station	Approved	10/8/2013	\$252,905
103	El Monte Bus Facility TVMs	Approved	10/15/2013	\$474,753

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104	Fare Gate Consoles for Expo 2, Colorado/4 th Street Station	Approved	5/26/2014	\$380,000
105	TVM and SAV Relocations	Approved	12/16/2013	\$1,456,632
106	Modification to Nextfare to Allow For Segregation of Facility Specific Data	Approved	1/29/2014	\$647,869
107	Passback Modification	Approved	2/18/2014	\$70,301
108	UFS PCI Compliance	Approved	10/23/2014	\$9,015,319
109	Service Provider Support	Approved	6/14/2014	\$66,777
110	Autoload Segregation by Muni	Approved	6/30/2014	\$111,707
111	SAV Three Distinct Tones	Approved	8/4/2014	\$46,634
112	Modify TAP Vending Machine to Improve Purchases	Approved	8/4/2014	\$250,000
113	ADA TVM Upgrades for CN No. 162 and 150 Replacement TVMs	Approved	8/5/2014	\$416,815
114 A	UFS Equipment for Gold Line Foothill Extension	Approved	8/25/2014	\$1,878,756
114 B	UFS Equipment for Expo Phase	Approved	8/25/2014	\$3,783,200
115	FBX External Interface Spec Changes	Approved	8/19/2014	\$20,488
116	Willowbrook Station Blue Line SAVs	Approved	11/19/2014	\$62,882
117	TAP-In, TAP-In, Transfer Gate	Approved	11/19/2014	\$88,598
118	Virtual Gate Arrangement of SAVs at Gold Line Union Station Entrance	Approved	11/19/2014	\$84,964
119	Conversion of Expo 1 Aerial Stations to Fare Gates	Approved	3/2/2015	\$3,077,952
120	Change in Service Level Agreement for TVM & GC Network Additions at No Cost	Approved	3/2/2015	\$0
121	Emergency Swing Gate External Alarm Mode	Approved	11/19/2014	\$0
122	Installation of Colorado & 4 th Faregates & ESGs	Approved	3/2/2015	\$163,143
123	OCDC Replacement Equipment Software and Installation	Approved	5/12/2015	\$681,068
124	Expo One Claim No. 1 Settlement	Approved	5/26/2015	\$19,648
125	UFS Global Network, Change for Credit/Debit Processing at TVM	Approved	5/12/2015	\$52,735
126	MetroLink Integration Support	Approved	5/12/2015	\$56,073
127	Metro Network Assistance	Approved	5/12/2015	\$48,758
128	Division 13 Bus Operations TVMs	Approved	5/12/2015	\$99,401
129	Fare Equipment Changes at MRL North Hollywood Station	Approved	5/12/2015	\$577,401
130	Installation of Additional TVM at MRL Civic Center Station North Entrance	Approved	7/15/2015	\$21,593
131	Relocate One TVM From Hawthorne to Hollywood	Approved	9/2/2015	\$31,983
132	Service Provider Support – Deductive Change (Mod 109)	Approved	6/13/2015	-\$66,777

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133	Additional Emergency Swing Gate for Expo 2	Approved	6/3/2015	\$10,970
134	Metrolink Support for LU Encoding	Approved	10/7/2015	\$13,666
135	Emergency Swing Gate Hinge Post Substitution at Expo 2 Bundy Station – No Cost Change	Approved	10/21/2015	\$0
136	Relocation of TVMs at MGL Artesia Station	Pending		\$0
137	(Not Used)			
138	Vertiba Support (Salesforce – CRM)	Approved	8/20/2015	\$9,671
139	Regional Inter Agency Transfer Policy Change	Approved	1/21/2015	\$435,000
139.01	Regional Inter Agency Transfer (IAT) Policy Change	Approved	7/15/16	\$480,000
140	54 TVMs, purchase and insctall	Approved	4/14/16	\$5,194,834
141	(Not Used)			
142	Network, back office station configuration and IAT support	Approved	4/25/17	\$14,578
143	Reduction in monthly PM services	Approved	5/8/17	(\$404,550)
144	20 BMV Install Kits	Approved	5/8/17	\$10,310
145	Sales, Use, Activate, Initialize and read transactions into Nextfare	Approved	5/25/17	\$0
146	TVM Screen Flow Phase 2	Approved	6/30/17	\$475,000
147	Revisions to Mod 140/CN 185.03 TVM Deployment Scope of Work	Approved	8/28/17	\$0
148	405 BMVs and 480 Install Kits	Approved	11/20/17	\$990,059
149	UFS Equipment for Crenshaw/LAX	Approved	12/1/2017	\$5,920,997
150	CPA Change to Include Terminal ID	Approved	10/18/17	\$45,487
151	UFS Equipment for Regional Connector	Approved	12/1/2017	\$3,316,556
151.01	Revisions to CN/Mod for Regional Connector Claim	Approved	3/28/2022	\$42,148
151.02	Storage Period Adjustment for Regional Connector Project (No-Cost)	Approved	2/7/2023	-
151.03	Not Used	-	-	-
151.04	Additional Cost for out-of-scope work – Regional Connector Project	Approved	3/28/2023	\$19,523.79
152	TAP System Patching	Approved	4/4/18	\$165,337
153	Network Back Office Configuration	Approved	4/12/18	\$37,222
154	TAP System Wide Upgrades	Approved	6/28/18	\$22,104,750
155	TAP System Support Services	Approved	4/25/19	\$68,220,642
156	Latitude/Longitude to A102 Reports	Approved	6/29/18	\$14,994
157	Willowbrook/Rosa Parks Station Improvements	Approved	10/25/18	\$2,622,560
158	Net Backup DPOO License & Support	Approved	6/7/2019	\$55,281
159	Procure Additional BMVs	Approved	6/27/2019	\$434,680
160	Q-Radar License Renewal	Approved	5/14/2020	\$53,647

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161	Additional ITS Network Equipment/Regional Connector Project	Approved	7/23/2021	\$57,860
162	Additional ITS Network Equipment/CLAX Station	Approved	7/23/2021	\$124,591
163/163.01	UFS Equipment for Purple Line Extension, Phase 1 Project	Approved	10/1/2021	\$4,038,756
164	Fare Capping Project	Approved	10/22/2021	\$5,662,667
165	Replacement of BMVs for All Door Boarding	Approved	2/24/2022	\$9,545,440
166	LIFE Fare Capping for Regular Cards	Approved	4/6/2022	\$149,888
167	SLA Abatement Relief – No Cost Mod	Approved	5/10/2022	-
168	Non-RMP Changes & Promo Card Enhancements	Approved	6/23/2022	\$387,000
169	QRadar License Renewal	Approved	6/30/2022	\$90,055
170	UFS Equipment for AMC/96 th St Station	Approved	9/20/2022	\$3,660,472
171	Fare Capping Phased Approach	Approved	2/14/2023	\$274,940
172	Rolling Weekly (7-Day) Pass	Approved	3/8/2023	\$1,255,979
173	TAP Core Server & TVM Upgrade Project	Approved	6/22/2022	\$12,364,519
165.01	Bus Mobile Validators (BMVs) for TAP Municipal Operators	Pending	Pending	\$4,032,850
	Modification Total:			\$321,645,270
	Original Contract:		2/28/2002	\$84,003,444
	Total:			\$405,648,714

DEOD SUMMARY

SECOND GENERATION BUS MOBILE VALIDATORS FOR TAP MUNICIPAL
OPERATORS/OP02461010**A. Small Business Participation**

Cubic Transportation Systems, Inc. made a 5.65% Disadvantaged Business Enterprise (DBE) commitment. The project is 87% complete and the current DBE participation is 6.60%, exceeding the commitment by 0.95%.

Small Business Commitment	DBE 5.65%	Small Business Participation	DBE 6.60%
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	DBE Subcontractors	Ethnicity	% Committed	Current Participation¹
1.	American Alloy Fabrication	Caucasian Female	0.25%	0.25%
2.	Lows Enterprise, Inc.	Black American	0.13%	0.03%
3.	TechProse	Caucasian Female	0.41%	0.05%
4.	Robnett Electrical	Black American	2.53%	5.94%
5.	Priority Manufacturing	Caucasian Female	0.93%	0.03%
6.	J-Tec Metal Products	Hispanic American	0.13%	0.03%
7.	KLI, Inc.	Asian-Pacific American	0.25%	0.07%
8.	Kormex Metal Craft	Asian-Pacific American	1.02%	0.20%
	Total		5.65%	6.60%

¹Current Participation = Total Actual amount Paid-to-Date to DBE firms ÷ Total Actual Amount Paid-to-date to Prime.

B. Living Wage and Service Contract Worker Retention Policy Applicability

A review of the current service contract indicates that the Living Wage and Service Contract Worker Retention Policy (LW/SCWRP) was not applicable at the time of award. Therefore, the LW/SCWRP is not applicable to this modification.

C. Prevailing Wage Applicability

Prevailing wage is not applicable to this modification.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this Contract. PLA/CCP is applicable only to construction contracts that have a construction related value in excess of \$2.5 million.

Detailed Listing of BMV Quantities for Agencies

TAP Agencies	BMVs on buses	Installed in facility
Angels Flight	-	1
Antelope Valley Transit Authority (Micro Transit)	11	1
Baldwin Park Transit	9	1
Burbank Bus	17	1
Carson Circuit	5	1
Compton Renaissance Transit Systems	5	1
Culver CityBus	3	1
Foothill Transit (transit store)	-	2
Glendale Beeline	44	1
Glendora Transit	10	1
Huntington Park Transit Unlimited	4	1
LA County Department of Public Works	28	1
Long Beach Transit	249	1
Los Angeles World Airports (FlyAway)	30	2
Monterey Park Spirit Bus	10	1
Palos Verdes Peninsula Transit Authority	26	1
Pasadena Transit	92	1
Redondo Beach, Beach Cities Transit	20	1
Santa Clarita Transit (Micro Transit)	54	1
Santa Monica Big Blue Bus	195	1
UCLA	-	1
Metro Micro	60	-
Central Maintenance Facility & three Metro Bus Divisions	-	4
Apple Lab	-	2
TAP Lab	-	7
Revenue Collection/Special Events	-	32
Cubic (Norwalk Facility)	-	1
Subtotals	872	69
Total Count¹	1,118	
Total Installations	900	

¹ Total count includes BMVs installed onboard buses, installed at facilities, and 20% spare units for TAP municipal operators

Features

- Accepts EMV open payments with contactless bankcards and mobile wallets, account based payments, agency-branded smartcards, virtualized smartcards and barcode tickets
- EMVCo L1 certified with L2 certifications for Visa, Mastercard, Amex and Discover
- Ultimate in EMV open payment security, plus PCI PTS ready and full P2PE capability
- Bright, full color LCD display with audible alerts for clear passenger and driver feedback
- Vehicle wired connectivity, with options for wireless 4G LTE, Wifi, Bluetooth Classic and Bluetooth Low Energy
- Powerful 1.6GHz ARM Cortex Quad-Core processor with 2GB DRAM, and 16GB of memory for faster payment
- Touchscreen option where passenger input is required



Cubic Validator 3.0

The Cubic Validator 3 collects passenger payments on board buses and trams. Contactless bankcards and mobile wallets are accepted, with barcode tickets and agency-branded smartcards. Any media or credential, physical or virtual, can be used for account-based travel. With Cubic Validator 3, transportation operators deploy new and secure open payment schemes rapidly, in the knowledge that existing ticketing and payment schemes can be supported.

Success with open payments means a guarantee of payment security and a proven path to brand certification. The validator is EMV L1 certified with EMV L2 certifications for Visa, Mastercard, Amex and Discover, and will support PCI PTS certification on request. When deployed with a PCI DSS certified payments module such as the Cubic Payment Application, the validator offers proven P2PE certified payments for the ultimate in transaction security.

Fast boarding times are essential for on-time arrival, increasing ridership and driving revenue. The validator's powerful processor guarantees rapid and accurate validation, and with clear signage, a large screen, and built-in speaker for audible feedback, each passenger is guided quickly through boarding and payment.

Our customers also require flexibility. Options include a large touchscreen display, barcode reader, cellular 4G LTE communications, WiFi and Bluetooth Classic and Low Energy. The validator is also available in a range of colors to reinforce our customers' branding.

Specifications

PHYSICAL	
Dimensions	230 x 175 mm (H x W); < 100mm depth to pole
Weight	1 kg
Material	Polycarbonate, vinyl decal, glass
Voltage	8 - 36 VDC
Power Over Ethernet (PoE)	Yes
Power Conditioning	Supports vehicle power, graceful shutdown, low voltage protection
Average Power Dissipation	< 11 W peak, approx. 7 W average
Operating Temperature	-27°C to 65°C
Storage Temperature	-30°C to 80°C
Relative Humidity	10-97% non-condensing
Protection	IP54 & IK08
CAPACITY	
Processor	Quad core 1.6 GHz Cortex
RAM	2 GB
Storage	32GB with 16GB available at a time (A/B side)
Expansion Ports	2 x USB 2.0 (not available while pole mounted); Serial RS232/RS485 (software selectable); Micro SD card for additional memory capacity
SAM Slot	2 from TR4 Secure Board, 2 from Application Board
Operating System	Linux OS kernel version 5.4
USER INTERFACES	
Display	Full color, 5" LCD, 800 nits, anti-reflective/anti-glare, 640 x 480 resolution
Touchscreen	Option
Speaker	Yes
INTERFACE OPTIONS	
Wired Interfaces	Ethernet 1000 Mbit RJ45
WiFi	WiFi: IEEE 802.11 a/b/g/n
Bluetooth	Bluetooth®: 4.1, Classic and Low Energy
WAN	4G cellular: LTE and LTE/HSPA (Optional)
GPS	Multi-constellation GNSS with untethered 3D inertial dead reckoning
FARE MEDIA ACCEPTANCE	
Media NFC Support	MIFARE® DESFire EV1, EV2 MIFARE® Ultralight C MIFARE® Classic, Ultralight, Plus
Open Payment Security	EMVCo L1 Certified EMVCo L2 Certified for: Visa® Contactless Payment Specification (VCPS) MasterCard® M/Chip Discover® Network D-PAS
Barcode	Linear and 2D barcodes, including QR Code and Aztec Code
In the interests of product improvement Cubic reserves the right to change the above specification without notice.	

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MIFARE® Ultralight C is a registered trademark of NXP.
MIFARE® Classic, Ultralight, and Plus are registered trademarks of NXP.
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State-of-the-Art Bus Mobile Validators for TAP Municipal Operators

Finance, Budget and Audit Committee

July 19, 2023



Metro

Background

- In 2012, the Board approved the purchase of 1,000 Bus Mobile Validators for 15 municipal operators. These BMVs unite the region with one fare collection system which offers seamless travel to all transit customers
- Unfortunately, the current BMVs are now over 10 years old, have exceeded their life expectancy, and are no longer manufactured
- Metro will not be able to add additional transit agencies or allow for expansion of buses for existing TAP partner agencies
- In addition, these old BMVs will not accommodate open payment technology (use of credit and debit cards as payment), and will not read barcodes for event or Metrolink ticketing

State-of-the-Art BMVs

- The new BMVs will:
 - Provide seamless fare collection on 21 Regional municipal operators' buses including Foothill Transit's transit stores, UCLA Transportation Office, and for special events
 - Enhance the customer experience:
 - Open payment and account-based ready
 - Operates faster
 - Utilizes 4G LTE cellular communications
 - Offers enhanced transaction security
 - Meets future capacity needs of Regional programs such as GoPass, Low Income Fare is Easy (LIFE), and fare capping by increasing delivery of autoloads from 30,000 in 30 minutes to 100,000 in 10 minutes
- This is the same device the Board approved in February 2022 for Metro's All-Door Boarding program



Funding

- TAP received \$2,456,000 of grant funding from the California Transportation Commission (CTC) as part of the Local Partnership Program (LPP)
- Metro will provide a local match of \$2,456,000. Total LOP budget of \$4,912,000
- \$500,000 is required in fiscal year 2024 for this contract modification, and the funding is included in the FY2024 Adopted budget

Next Steps

- Upon Board approval, staff will execute the contract modification and extend a limited notice-to-proceed to the vendor to order the new state-of-the-art BMVs
- Delivery of the BMVs will occur in July 2024
- Installation of Muni BMVs begins August 2024 and will conclude by November 2024



Recommendation

- AUTHORIZE the Chief Executive Officer to execute Modification No. 165.01 to Contract No. OP02461010 with Cubic Transportation Systems, Inc. ("Cubic"), for the purchase and installation of 1,118 new state-of-the-art Bus Mobile Validators (BMVs) for the 21 Regional municipal operators and muni transit stores and special events, in the amount of \$4,032,850, increasing the total contract value from \$401,615,864 to \$405,648,714.