



Board Report

File #: 2023-0617, File Type: Contract

Agenda Number:

REVISED
FINANCE, BUDGET AND AUDIT COMMITTEE
MAY 15, 2024
OPERATIONS, SAFETY AND CUSTOMER EXPERIENCE COMMITTEE
MAY 16, 2024

SUBJECT: TAP PLUS

ACTION: APPROVE RECOMMENDATIONS

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to:

- A. EXECUTE Modification No. 176 to Contract No. OP02461010001, with Cubic Transportation Systems, Inc. (“Cubic”), in the amount of \$66,423,946 for upgrading the current fare payment system to include open payment and account-based functionality and expand its capabilities to improve the customer experience, including acceptance of credit and debit cards as payment on buses and at rail stations for 27 Los Angeles County transit agencies;
- B. EXECUTE Modification No. 155.02 to Contract No. OP02461010MAINT000, with Cubic Transportation Systems, Inc. (“Cubic”), in the amount of \$78,883,737 to support the current fare collection system, as well as the upgrade, and to extend the period of performance for an additional four years from January 1, 2025 to December 31, 2028; and,
- C. NEGOTIATE and execute all agreements, contract awards, including contract modifications, not to exceed \$6.5 million for software development and/or integration to implement open payment and account-based functionality.
- D. AMEND the FY25 Budget by \$33,000,000 to accommodate for the cash flow requirements of FY25 for the first-year implementation of the TAP Plus project.

ISSUE

The current TAP fare payment system requires an upgrade to expand its capabilities to meet the features available at transit systems around the country and the world v. Proposed improvements include acceptance of credit and debit cards as payment on buses and at rail stations, as well as a new account-based system that makes it easier for current and new customers to sign up for and use the TAP system and make it easier for riders to access reduced and free fares (e.g., GoPass and the

LIFE program).

BACKGROUND

Los Angeles County's regional TAP system is one of the largest smartcard transit fare collection systems in the world, serving the region's customers each year. The TAP system makes it easy for customers to travel seamlessly across the county's municipal transit operators, in addition to Access Services, Metrolink, Metro Bike Share, and Metro Micro, through a unified fare collection system.

The current TAP system is flexible and enables many features for Metro, the 27 transit operators, and customers, such as:

- Management of a complex regional fare table, with over 700 fare products
- Facilitation of interagency transfers
- Implementation of reduced fares, discounted pass products and fare capping on Metro
- Offer free fares for LIFE and GoPass
- Availability of mobile payment options including a mobile app and Apple Wallet
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TAP fare products (tap cards) can be purchased at over 1,500 locations throughout Los Angeles County including Los Angeles County Libraries, online at *taptogo.net*, and 545 TAP Vending Machines (TVM) in operation at 143 locations, and aboard buses. TAP is accepted or considered valid fare media on 27 agencies across LA County, listed below:

1. Angels Flight
2. Antelope Valley Transit Authority
3. Baldwin Park Transit
4. BurbankBus
5. Carson Circuit Transit System
6. City of Monterey Park Spirit Bus
7. Compton Renaissance Transit Systems
8. Culver CityBus
9. Foothill Transit
10. Glendale Beeline
11. Glendora Transit
12. City of Gardena, GTrans
13. Huntington Park Transit
14. LA County Department of Public Works
15. LADOT Transit
16. Lawndale Beat
17. LAX FlyAway (LAWA)
18. Long Beach Transit
19. Metro
20. Montebello Bus Lines
21. Norwalk Transit System

- 22. Palos Verdes Peninsula Transit Authority
- 23. Pasadena Transit
- 24. Redondo Beach Cities Transit
- 25. Santa Clarita Transit
- 26. Santa Monica Big Blue Bus
- 27. Torrance Transit

However, the system needs to be upgraded to meet and exceed customer expectations.

For example, many transit systems already accept credit and debit card payment when boarding, reducing a barrier to trial for new or infrequent riders, as well as visitors from other parts of the country or the world. The addition of open payments would address this issue.

LIFE customers who prefer not to use the mobile app, website, or retail locations now must call the TAP Call Center each month to access their 20 free rides. The GoPass program also requires customers to input a code to load a pass and pick it up at the reader before they can use it. The addition of an account-based system would address these issues that make benefits less accessible to our most vulnerable customers.

TAP must upgrade its capabilities to improve accessibility to the correct fare payment plans, so customer expectations are satisfied and ensure broad access to free and reduced fares.

DISCUSSION

TAP Plus Software Enhancements and New Equipment

Metro's payment technology is trailing behind when compared to those of leading agencies across the world. Improvements such as contactless open payment and account-based systems, cater to both the needs of local customers and those of visitors and residents who will be attending, working, or participating in the World Cup, Super Bowl, Olympic and Paralympic Games - as well as mega sporting and entertainment events that occur every day in Los Angeles. To meet customers' expectations and make it easier to attract new riders, Metro must offer the features that are commonplace today, which requires the purchase of new equipment such as new bus validators and gate readers.

Open Payment

Open payment will allow customers and visitors to use the same contactless credit/debit card or mobile wallet they use for everyday purchases to tap and ride on Metro and all the other TAP participating transit agencies. By simply tapping a bank card or mobile wallet on the TAP reader, fare payment transactions will be generated and secured via upgraded readers and system software in conformance with Europay, MasterCard, Visa (EMV), and Payment Card Industry (PCI) standards governing contactless open payment transactions.

Account-Based System

An account-based system is a hub where customers' fare products, transaction history, and rider class are stored and managed securely in a cloud-hosted back office. The new architecture will simplify payment not only for transit, but for other mobility services such as bike share, parking, multiple microtransit services, and others.

An account-based system allows customers the flexibility to load and use their fare products in real time. This change expands the range of payment options that customers may add to their accounts, including contactless smart (TAP) cards, encrypted barcodes, contactless credit and debit cards, PayPal, and PayNearMe.

An account-based system is required to support the following:

- Open payment and the use of credit/debit cards for Reduced Fares (Seniors, Persons with Disabilities, Students)
- Real-time delivery of discounted fare products for LIFE & GoPass
- Ability for customers to set automatic reloads of Stored Value or other transit passes
- Payment for third-party mobility partners, such as Bike Share, Metro Micro, and scooters
- Event ticketing integration

The TAP system currently receives about 25,000 online fare purchase requests a day. Metro's current system capacity is about 27,000 per day and often this is exceeded. This requires constant monitoring to ensure customers get the passes they order. With the proposed account-based system, Metro will be able to store an infinite number of pass orders.

Integrated Ticketing for Major Sports and Entertainment Events and Metrolink

With the FIFA World Cup 2026, Super Bowl 2027, and the Olympics 2028 on the horizon, Los Angeles is set to be in the global spotlight. These events are not just opportunities to showcase the region's vibrant culture and spirit but also pivotal moments for LA Metro to redefine urban mobility. Recognizing this, it is imperative to ensure connectivity with major event venues and the TAP system, ensuring a seamless experience for attendees traveling to and from major event venues.

Integrated event ticketing will be a powerful incentive for customers to shift from driving to taking transit to events. Transit fare options will be included in the event ticket purchase process, and customers will be guided to choose transit as their preferred mode of travel.

In preparation for these major events, Metro is already taking proactive steps through a U.S. Department of Transportation SMART Grant pilot by working with the LA Philharmonic's (LA Phil) Hollywood Bowl Summer Music Program to test integrated ticketing. Hollywood Bowl customers will have an option to purchase a GoMetro Round-Trip Pass QR code in the LA Phil app or on the website.

Barcode scanning is currently available only on Metro Rail on the B/C Line in partnership with Metrolink and its barcode vendor. To ensure regional event ticketing integration, TAP Plus includes the purchase of enhanced validators equipped with barcode scanners for rail stations. Validators for

buses have already been purchased and installation is in progress, with a completion date by early 2025.

Benefits to Customers

TAP Plus comes with numerous enhancements to the customer experience.

- Customers will be able to pay fares with contactless credit and debit cards (including mobile wallet) directly on the bus and at rail stations throughout LA County. Customers using contactless credit/debit cards or mobile wallets will also automatically benefit from Metro's fare capping program without having to purchase a TAP card or load one on their mobile wallet.
- Customers will be able to manage their own accounts to instantly reload fares, transfer funds from one card to another, or easily add eligible special discounts or free fares, without having to visit a Metro Customer Center or TAP machine, or call the Metro call center.
- Customers attending special events will benefit from an integrated ticket solution providing convenient transit options, making their journey hassle-free and more efficient.
- LIFE and GoPass customers will have quicker access to free and discounted fares with account-based processing.
- TAP will recognize Electronic Benefits Transfer (EBT) at TAP Vending Machines, which will enable qualified customers to purchase free and discounted fares faster.
- TAP Plus would facilitate the potential merger of Metro's customer-facing mobile applications, as it enables customers to pay for various services using the same fare payment.
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New Equipment

The Board recently approved the purchase of new state-of-the-art Bus Mobile Validator (BMV) devices for Metro and TAP participating transit operators, including Metro Micro, municipal transit stores, and for special events. These devices are currently being installed on Metro and installation on municipal buses will be completed by early 2025.

The TAP Plus project includes the next generation of TAP card readers and new station validators. All fare equipment will accept TAP, barcode and credit/debit card payment. Below are brief descriptions of each equipment type (quantities include spares, devices for TAP lab testing, etc.).

- **Validator:** 4,520 new BMVs equipped with QR code scanners, larger display, and enhanced audible alerts
- **Station Validator:** 328 validators will replace current validators with QR code scanners, ADA compliant Braille, along with a larger, enhanced display and audible alerts
- **Gate:** 603 existing Metro Rail gates will be modernized with QR code scanners
- **TAP Vending Machine (TVM):** 684 TVMs, including TVMs in operations, TAP Lab, spares, and in storage in support of new Rail projects, will be upgraded with a new ADA pin pad and DIP reader (Document Insertion Processor)

Retail Point-of-Sale Device and the Fare Inspection Device

To reduce costs, the Retail Point-of-Sale (RPOS) device and the fare inspection device are not included in TAP Plus. TAP will work with System Security and Law Enforcement (SSLE) for the development of the fare inspection application and purchase of off-the-shelf devices through a competitive procurement process.

Cloud-Hosted Back Office

In addition to upgrading customer-facing fare collection equipment, TAP Plus will deliver a scalable, cloud-hosted back office that will integrate with mobility partners such as Bike Share, Metro Micro and other services. This means customers can conveniently use the same payment method across various transportation options.

Benefits to 27 TAP Partner Agencies

TAP Plus enhancements will benefit TAP partner agencies by upgrading their onboard BMVs to accept existing TAP cards, interagency transfers on TAP, open payment cards, account-based cards, regional fare capping and barcode ticketing at no additional cost.

Implementation Schedule

In Phase 1 of the upgrade, the contractor will launch open payment in early 2026 in time for the World Cup Games. Phase 2 will include the launch of the account-based system by the Fall of 2026, well before the Super Bowl and Olympic Games (Attachment A). This timing will allow Metro to stress test systems during significant sporting events so we can be sure they are ready to support the millions of customers we will see during the Olympic and Paralympic Games.

Guarantees and Warrantees

Maintaining the schedule is crucial to ensure key features are delivered in time for the World Cup in 2026. The agreement specifies penalties for failing to meet important milestone dates, \$10,000 per day for each day key milestone dates are missed. These penalties will recur daily until a maximum of \$700,000 is reached.

New hardware purchased under the terms of the agreement will include a one-year warranty. After the one-year warranty expires, the hardware will be added to the support services agreement for continuous coverage.

Extending the TAP System Support Services Agreement and Cost Analysis

The current TAP System Support Services Agreement was approved in 2019 for a period of five and a half (5.5) years and will expire on December 31, 2024. As part of this report, staff recommends extending the agreement for an additional four (4) years to ensure continuity of service for the World Cup in 2026, the Superbowl in 2027 and the Olympics in 2028.

Metro currently spends about \$16.8 million per year on maintenance of the TAP system, across the 27 TAP partner agencies. In comparison, the new four-year agreement will include support of all current and proposed hardware and software for about \$19.7 million per year. This represents an annual increase of \$2.9 million to cover enhancements and moving current tasks from Metro to the contractor, outlined below.

Support Services Agreement	(\$ in millions)
Adding Open payment & account-based Back Office	\$ 1.14
Transition data storage from Metro servers to cloud-hosting	\$ 1.16
Shift responsibility from Metro to contractor for complying to Payment Card Industry, or PCI, standards	\$ 0.10
Move the TAP mobile app's fee-based service to a flat rate	\$ 0.50
Total	\$ 2.90

The enhancements and transitioning of services amount to \$11.5 million over four years from the previous Support Services Agreement.

Service Level Agreements

Service Level Agreements (SLAs), or Key Performance Indicators (KPIs), are built into the support service agreement with defined availability and performance levels to be achieved for each service such as 24/7 help desk, the TAP app, cloud-hosting service, fare inspection app, and deployed equipment and devices on bus and rail to ensure optimal performance during peak and non-peak hours. The SLAs are designed to incentivize the contractor to deliver excellent performance, while also imposing penalties for failing to meet the SLAs. The SLAs will be carried forward to the extended TAP System Support Services contract. When SLAs are not met, the contractor will be penalized with abatement fees.

Their current performance level has been at 97.96% over the past five years.

DETERMINATION OF SAFETY IMPACT

No adverse safety impacts are anticipated from upgrading the current fare collection system with enhancements and features from TAP Plus.

FINANCIAL IMPACT

TAP Plus

The cost for the TAP Plus upgrade is \$66,423,946. This includes a full system upgrade and integration and moves the TAP's legacy card-based environment to an account-based, open payment-enabled solution.

Metro continues to work with credit card companies to provide funding to support TAP Plus and

negotiate favorable transaction rates to reduce costs.

Upon Board approval, funding for the TAP Plus project will be amended into the FY25 budget. Since this will be a multi-year effort, the Senior Executive Officer of TAP and Project Manager will be responsible for budgeting costs in future years, based on the annual cashflow needs.

TAP System Support Services

Separately, the cost for the TAP System Support Services Agreement will be \$78,883,737 over four years for field services, security/PCI administration, licenses, and cloud-hosting services. Budget for the first year for support services is included in the proposed FY25 budget under cost center 5440, in the Revenue Collection Department for contracted maintenance services. Since this is a multi-year contract, the cost center manager and Senior Executive Officer of TAP will be responsible for budgeting funding needs in future years.

The funding source for the TAP Support Services Agreement will be Proposition C 40%. These funds are eligible for Metro, regional bus, rail operations and capital improvements.

Potential Long-Term Savings

As customers transition to open payment, there is a potential savings of \$5 million to \$10 million, representing a 10% to 20% reduction in the number of operational TVMs. The reduction of operational TVMs can be re-deployed to new rail lines to support rail expansion projects. Other savings may be realized through a decrease in the number of TAP cards procured, up to 29% of credit or debit card transactions at TVMs may potentially transition directly to open payment at fare gates or validators on Metro Rail.

EQUITY PLATFORM

TAP upgrades such as instant qualifications for low-income and reduced fare customers are designed to benefit low-income households, which make up the significant majority of Metro's ridership. With an account-based platform, eligible customers with an Electronic Benefit Transfer (EBT) Card or proper identification could potentially qualify instantly at rail stations for reduced fares, without having to wait for the processing time to enjoy reduced Metro fares.

Throughout 2022, TAP use increased by approximately 8% on Metro Bus and Rail. This increase may be attributed to increases in LIFE and GoPass registrations, facilitated by the simplified enrollment process on TAP. With the introduction of instant qualification through the proposed TAP upgrades, staff hopes to see a projected increase in TAP usage of at least 8-10% to at least match that of 2022.

Cash-paying customers or customers without internet access or smartphones will still be able to use the Metro system as they currently do today. The existing fare payment methods or amenities will remain unchanged with the TAP upgrades. Metro will continue to identify inclusive strategies to reach cash-paying customers to facilitate TAP benefits for these riders; for example, a Metro-issued transit debit card could be made available to increase their access.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Approval of the recommendations are in accordance with the following goals:

1. Strategic Plan Goal #1: Provide high quality mobility options that enable people to spend less time traveling as part of an effort to manage transportation demand through fair and equitable pricing structures.
2. Strategic Plan Goal #2: Deliver outstanding trip experiences for all users of the transportation system by improving legibility, ease of use, and trip information on the transit system.

2.2: Metro is committed to improving legibility, ease of use, and trip information on the transit system.

ALTERNATIVES CONSIDERED

The Board could decide not to amend the Cubic contract and issue a new Request for Proposal (RFP) for an open payment and account-based system and to maintain TAP equipment. Staff does not recommend this, considering the complexity of the TAP system and the demands on software and equipment integration. Specifically,

- RFP and new software and equipment implementation would not be ready in time for the FIFA World Cup in 2026 or the Olympic Games in 2028, which are opportunities to stress test the new systems in advance of the Olympic and Paralympic Games.
- At a minimum, all transit agencies on TAP, including Metro, would have to replace the TAP bus mobile validator/readers. New BMVs were procured very recently. Secondly, the new vendor would have to integrate with each agency's Computer-Aided Dispatch and Automatic Vehicle Location, also known as CAD/AVL.
- A new vendor may require replacing all current equipment (could involve replacing gates, station validators, bus fareboxes, bus mobile validators and TVMs). This is cost-prohibitive (\$750 million to \$2 billion).
- A new vendor must take over maintenance and upgrades to current gates, validators, and bus fareboxes, requiring Cubic and the new vendor to work together to integrate the new vendor's software and readers with the current equipment. This will be extremely difficult to coordinate resulting in integration delays.

The cost of TAP Plus is reasonable because it not only upgrades Metro to meet the standards of other transit agencies across the country and the world but will also enhance the fare collection systems of 26 other agencies. This represents 4,400 buses, 101 Metro Rail stations, and over 12,000 Metro Bus stops. On average, the capital costs for each agency would be around \$2.5 million, and the support services agreement would amount to approximately \$0.84 million per year per agency. By comparison, Minneapolis' transit agency has a fleet size of 900 buses and two light rail lines and recently awarded a contract for \$37 million. San Francisco awarded a contract for \$394 million, Chicago for \$320 million, and New York for \$554 million. This upgrade would also support the agency's goals and work underway investigating the possibility of merging Metro's mobile applications to improve the customer experience.

Further, FTA Circular 4220.1.f allows Metro to make a change to a contract when justified. The Circular also allows Metro to issue a contract modification when patent or data rights restrictions preclude competition. The TAP software upgrade is developed and engineered by the current vendor, so it is proprietary and intellectual property. V/CM reviewed the scope of work and determined the recommendation is justified as a contract modification.

Staff considered two alternatives to TAP Plus.

1. Continue with the current TAP mobile/card-based system while adding open payment. The estimated cost would be about \$46 million. This option would not include the account-based system that would be of particular benefit to our most vulnerable customers. This does not address the limit on the number of daily autoloading requests, continues delays in loading LIFE and GoPass fares and does not offer reduced fares for credit and debit card use. At a minimum, integrated event ticketing could be done in partnership with Metrolink's barcode ticketing vendor and with some software programming from Metro's vendor for an additional cost. This alternative does not include cloud-hosting, so it necessitates the replacement of in-house servers at a cost of about \$4 million.
2. Continue with the current TAP mobile/card-based system while launching a robust marketing campaign to encourage customers to transition to the TAP mobile app prior to the World Cup, Superbowl and Olympic Games. Customers could use their credit or debit cards to purchase fares using a virtual TAP card on their mobile phones (in use now). At a minimum, integrated event ticketing could be done in partnership with Metrolink's barcode ticketing vendor and with some software programming from Metro's vendor for an additional cost. However, this would not support the agency's goals and work underway investigating integrating Metro's various mobile applications to improve the customer experience.

NEXT STEPS

Upon approval by the Board, staff will execute the contracts and/or contract modifications to implement TAP Plus and to extend the TAP System Support Services for a period of four (4) years through December 31, 2028. Staff will provide periodic updates as to progress.

ATTACHMENTS

- Attachment A - Tentative Timeline on Customer Benefits
- Attachment B - Procurement Summary
- Attachment C - Contract Modification/Change Order Log
- Attachment D - DEOD Summary
- Attachment E - Frequently Asked Questions

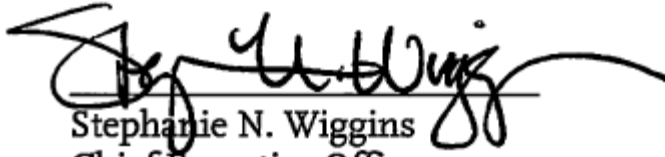
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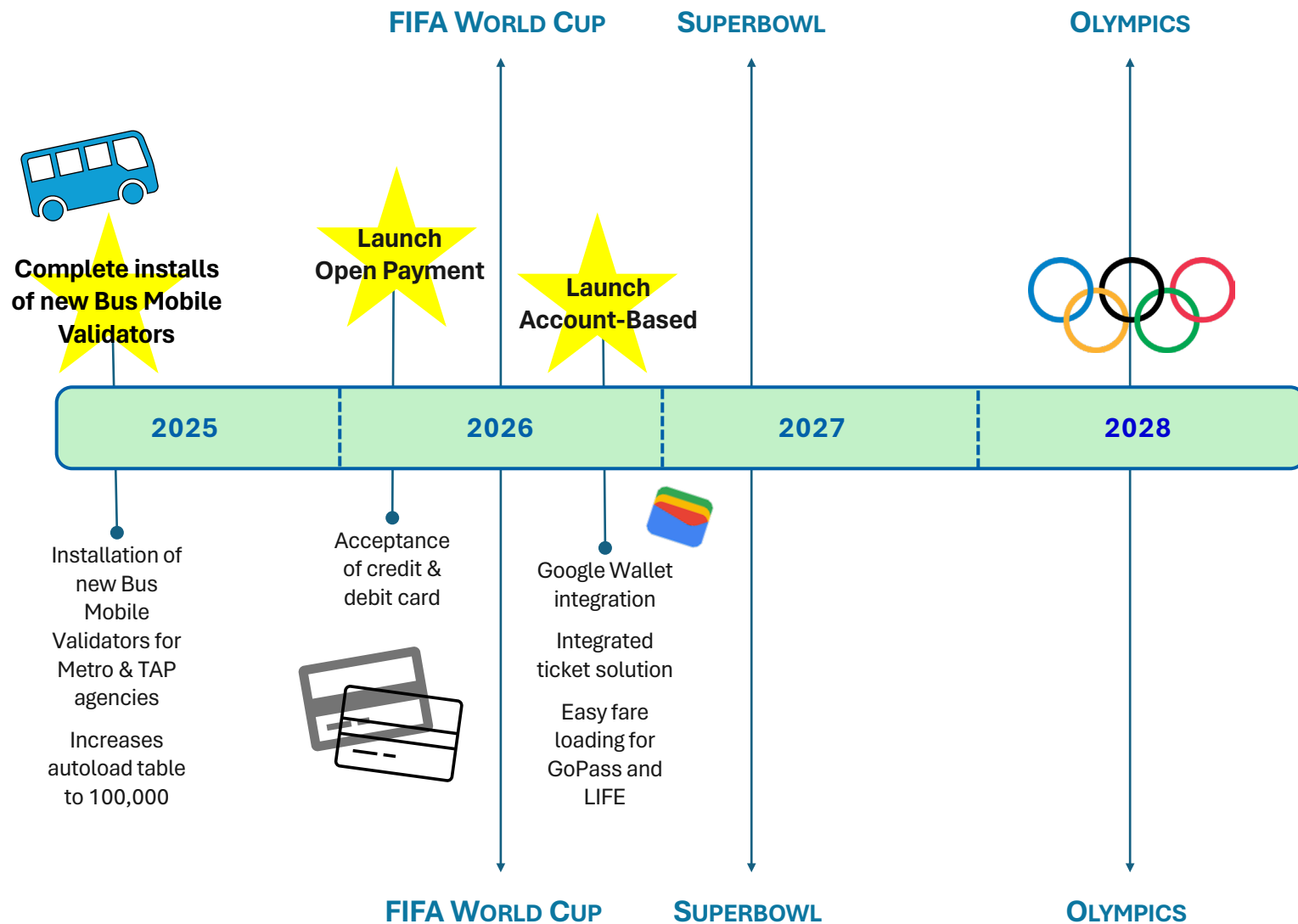
Tisha Bruce, Executive Officer, Finance, (213) 922-7621

Reviewed by: Nalini Ahuja, Chief Financial Officer, (213) 922-3088



Stephanie N. Wiggins
Chief Executive Officer

Tentative Timeline for Customer Benefits



PROCUREMENT SUMMARY

UNIVERSAL FARE SYSTEM / OP02461010001
UNIVERSAL FARE SYSTEM, SUPPORT SERVICES / OP02461010MAINT000

1.	Contract Number: OP02461010001 / OP02461010MAINT000		
2.	Contractor: Cubic Transportation Systems, Inc.		
3.	<p>Mod. Work Description: Contract No. OP02461010001, Mod No. 176 - TAP 2.0 System Upgrade to open payment and account-based functionality and expand its capabilities to improve customer experience, including acceptance of credit and debit cards as payment on buses and at rail stations for 27 Los Angeles County transit agencies.</p> <p>Contract No. OP02461010MAINT000, Mod No. 155.02 – to support the current fare collection system as well as the upgrade to extend the period of performance through December 31, 2028.</p>		
4.	Contract Work Description: Universal Fare System		
5.	The following data is current as of: 5/7/24		
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: \$333,575,331
	Original Complete Date:	9/1/2007	Pending Modifications (including this action): Mod No. 176: \$66,423,946 Mod No. 155.02: \$78,883,737
	Current Est. Complete Date:	12/31/2028	Current Contract Value (with this action): \$562,886,458
7.	Contract Administrator: Amy Chi		Telephone Number: (213) 922-2278
8.	Project Manager: Tisha Bruce Mauro Artega		Telephone Number: (213) 922-7621 (213) 922-2953

A. Procurement Background

This Board action is to approve Contract Modification No. 176 for the TAP Plus upgrade and modernization of the aging fare collection system with a cloud hosted back-end system. This upgrade will enable open payment and account-based processing that will enhance security, prepare for new payment technologies, simplify regional fares and requirements to ensure that all our customers experience a convenient, reliable, and user-friendly barrier free fare payment system.

This Board action is also to approve Contract Modification No. 155.02 issued to extend the Support Services Contract (OP02461010MAINT000) through December 31, 2028, in order to maintain continuous support of the Universal Fare Collection System. The current System Support Services is scheduled to expire December 31, 2024, and continuation is critical in order to operate and maintain the integrated fare collection system to ensure uninterrupted sales, access, and system management of the fare gates and Ticket Vending Machines (TVMs). The modification will ensure that the deployed equipment and back office are operating at optimal levels to support the expected influx of tourists visiting Los Angeles for the World Cup in 2026, the Superbowl game in 2027 and the Olympics in 2028.

These two Contract Modifications will be processed in accordance with Metro’s Acquisition Policy and the contract type is firm fixed price.

On February 28, 2002, Contract No. OP02461010001 was awarded by Metro’s Board to Cubic Transportation Systems, Inc. (Cubic). The Contract provides a countywide fare collection system and on-going system support to serve Metro’s public transit customers. Cubic developed and maintained the NextFare software application and related databases which is the core technology managing the entire Transit Access Pass (TAP) network consisting of bus and rail equipment and devices. NextFare communicates with all of the fare collection devices including BMVs 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 C – 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, independent cost estimate (ICE) and negotiations.

Mod No.	Proposal Amount	Metro ICE	Recommended Amount
176	\$68,405,432	\$67,073,317	\$66,423,946
155.02	\$96,726,917	\$78,857,438	\$78,883,737

CONTRACT MODIFICATION/CHANGE ORDER LOG

UNIVERSAL FARE SYSTEM / OP02461010001
UNIVERSAL FARE SYSTEM, SUPPORT SERVICES / OP02461010MAINT000

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	\$7,454,844.00
4	Modification to General Conditions	Approved	10/8/2002	\$0.00
5	TVM Third Coin Hopper	Approved	8/22/2003	\$416,858.00
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	\$48,476.00
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	(\$35,252.00)
19	Variable Message Sign	Approved	2/19/2004	\$243,828.00
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	\$675,000.00
23	Mifare Card Initialization and Verification	Approved	6/8/2004	\$9,629.00
24	Farebox Mounting Adapter for NABI Buses	Approved	7/9/2004	\$32,485.00
25	Provide Regional CDCS	Approved	2/25/2005	\$5,348,335.00
25.01	Regional CDCS Overhead Rate Adjustment	Approved	1/17/2007	(\$31,621.00)
25.02	Regional CDCS Acceptance Test Participants	Approved	8/7/2008	\$0.00
26	Remove Requirement for Focus Groups	Approved	12/20/2004	(\$111,704.00)
27	Farebox Rotation	Approved	1/4/2005	\$74,967.00
28	Metro Gold Line Eastside Extension, Fare Equipment	Approved	7/25/2006	\$3,808,722.00
29	Stainless Steel Panels for TVM Alcoves	Approved	4/25/2005	\$45,521.00
30	Data Communication Cabling for Orange Line	Approved	6/10/2005	\$41,560.00
31	(Not Used)			
32	Additional Spare Part Quantities for Eastside Ext.	Approved	7/25/2005	\$15,480.00
33	Mifare Card Functionality on UFS	Approved	8/15/2005	\$33,105.00
34	Revisions to Project Schedule	Approved	10/26/2000	\$0.00
35	OCU Mount	Approved	11/15/2005	\$87,634.00
36	(Not Used)			
37	Deductive Change for Line 1.36	Approved	4/6/2007	(\$33,116.00)
38	Installation of Third TVM and Relocation of Two SAVs and Blue Line Willow Station	Approved	7/6/2006	\$10,084.00
39	Upgrade the CDCS System from IB SSA Disk Storage Subsystem to Fiber Disk	Approved	10/2/2006	\$20,000.00
40	UFS Equipment for Expo Line	Approved	2/16/2007	\$5,197,204.00
41	(Not Used)			
42	(Not Used)			

43	HHV, PMOS and CPOS Interim Maintenance Deductive Change	Approved	2/16/2007	(\$162,628.00)
44	UFS Additional Quantities for Contracted Services	Approved	2/16/2007	\$2,499,916.00
45	Replace Go-Cards with Mi-Fare Cards	Approved	2/16/2008	(\$1,157,850.00)
46	Relocation of Data Probes and Receive Vaults at Division 7	Approved	4/9/2007	\$29,787.00
47	Revisions to US Base and Regional Manuals for Release to ACS	Approved	4/23/2007	\$46,000.00
48	Expo Line, Pico Station Infrastructure	Approved	7/18/2007	\$18,542.00
49	Relocation of UFS Lab Equipment	Approved	6/2/2008	\$106,905.00
50	Expo 7 th and Metro Additional Infrastructure	Approved	8/30/2007	\$81,719.00
50.01	Expo 7 th and Metro Infrastructure Deductive change	Approved	8/30/2007	(\$30,173.00)
51	Handheld Validator Holster	Approved	10/16/2007	\$6,184.00
52	Installation and Testing of Farebox at Transportation Concepts	Approved	3/6/2008	\$16,091.00
53	Relocate OCUs on Ford Cutaways and MST Buses at Contracted Services	Approved	5/14/2008	\$79,170.00
54	Installation of one Farebox and Testing for two Fareboxes at Contracted Services	Approved	5/27/2008	\$18,842.00
55	UFS Quantity Adjustments	Approved	10/9/2008	\$0.00
56	Contracted Bus Service Equipment Change	Approved	12/3/2008	\$36,704.00
57	Installation and Acceptance Testing of One Farebox at First Transit	Approved	12/19/2008	\$3,040.00
58	Provide UFS Equipment for Expo from Culver City to Venice/Robertson Aerial Station	Approved	3/4/2009	\$304,246.00
59	Regional CDCS Electrical Power Reconfiguration	Approved	2/9/2009	\$17,186.00

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	\$10,000,000.00
62	Provide UFS Equipment for Expo Truesdale Station	Approved	3/4/2009	\$284,167.00
63	System Support Services	Approved	6/8/2010	\$33,988,558.00
63.01	SSS, Additional Costs	Approved	3/22/2013	\$677,631.00
63.02	SSS, Orange Line Credits	Approved	3/22/2013	(\$58,243.00)
63.03	SSS, One-year Extension	Approved	3/22/2013	\$8,148,263.00
64	\$5 Dollar Bill handling Unit for Fareboxes and TVMs	Approved	7/27/2009	\$304,658.00
65	Installation of Additional SAVs for Eastside Extension	Approved	1/4/2010	\$34,077.00
66	Relocation of Wing Gate at MRL Wilshire/Normandie Station	Approved	2/2/2010	\$18,905.00
67	(Not Used)	Approved		
68	UFS Equipment for Orange Line Extension	Approved	11/2/2010	\$2,749,476.00
68.01	Transfer Maintenance Dollars to 63.01	Approved	1/25/2013	(\$677,631.00)
68.02	UFS Equipment for Orange Line Extension, Credits	Approved	3/22/2013	(\$10,982.00)
69	Additional TVM at Aviation Greenline Station	Approved	4/2/2010	\$13,031.00
70	TAP Card Physical Testing	Approved	4/28/2010	\$41,844.00
70.01	TAP Card Physical Testing	Approved	3/22/2013	\$12,658.00
71	Concession Light Functionality	Approved	6/30/2010	\$96,726.00
72	(Not Used)	Approved		
73	API Test Server Imaging	Approved	9/9/2010	\$45,024.00
74	Contract Services Relocation	Approved	11/1/2010	\$33,854.00
75	Limited Function Sales Office Terminals, Increase Quantity	Approved	2/15/2011	\$993,795.00
76	CISCO ASA Acquisition and Implementation for API Test and Production Servers	Approved	2/28/2011	\$59,209.00
77	Cubic LU Key Installation	Approved	3/3/2011	\$69,097.00

78	Updates Farebox Configuration to Support ARUB Wireless Security Data Transfer	Approved	3/3/2011	\$40,204.00
79	Relocation of UFS Test Lab Equipment	Approved	4/25/2011	\$80,911.00
80	7 Byte UID Support	Approved	4/20/2011	\$362,069.00
81	Fare Gate Fencing Installation Modifications, North Hollywood and Avalon Stations	Approved	4/25/2011	\$24,004.00
82	Additional TVM at Hollywood/Western Redline Station	Approved	4/25/2011	\$15,531.00
83	Purchase Drive Control Unit Light Validators DCU-LV	Approved	4/25/2011	\$363,492.00
84	Install TVMs at Three Metro customer Centers	Approved	6/6/2011	\$386,680.00
85	Cubic Modification to Gate Software/Locking Commands	Approved	6/29/2011	\$111,188.00
86	UFS Equipment for Expo Phase I Farmdale Station	Approved	7/26/2011	\$415,184.00
87	Relocation of TVMs at the Green Line Long Beach Station	Approved	8/25/2011	\$15,909.00
88	Mobile Validator Non-Recurring Engineering System Development	Approved	10/12/2011	\$611,677.00
89	Expo Pico Station North Platform TVM/SAV Work	Approved	3/5/2012	\$17,592.00
90	Deletion of Contract Line Items 1.03, 1.04 & 1.33	Approved	2/15/2012	(\$20,622.00)
91	Orange Line Installation of 12 Metro Provided SAVs	Approved	2/15/2012	\$34,483.00
92	(Not Used)			
93	(Not Used)			
94	System Support Services, Six Year Extension	Approved	7/1/2013	\$55,000,000.00
94.01	(Not Used)			
94.02	System Support Services for Expo II and Foothill Extension	Approved	3/2/2015	\$1,152,749.00
94.03	Maintenance Support Services for 54 TVMs	Approved	4/14/2016	\$838,211.00

95	UFS Equipment Storage Costs	Approved	6/13/2012	\$4,129.00
96	Faregating, Three Additional Swing Gates	Approved	2/4/2013	\$44,611.00
97	Green Line Faregating Additional Fire Key Switches at Vermont Station	Approved	4/1/2013	\$8,392.00
98	Emergency Swing Gate Upgrades	Approved	4/15/2013	\$252,145.00
99	Removal of TVM from Wilshire/LaBrea Customer Center	Approved	10/8/2013	\$4,883.00
100	Supplying and Supporting a Turn Key Mobile Validator System	Approved	7/1/2013	\$2,996,113.00
101	Bus Division Vault Relocation	Approved	8/1/2013	\$995,940.00
102	Install One TVM at East Portal Customer Service Center and One at Culver City Station	Approved	10/8/2013	\$252,905.00
103	El Monte Bus Facility TVMs	Approved	10/15/2013	\$474,753.00
104	Fare Gate Consoles for Expo 2, Colorado/4 th Street Station	Approved	5/26/2014	\$380,000.00
105	TVM and SAV Relocations	Approved	12/16/2013	\$1,456,632.00
106	Modification to Nextfare to Allow For Segregation of Facility Specific Data	Approved	1/29/2014	\$647,869.00
107	Passback Modification	Approved	2/18/2014	\$70,301.00
108	UFS PCI Compliance	Approved	10/23/2014	\$9,015,319.00
109	Service Provider Support	Approved	6/14/2014	\$66,777.00
110	Autoload Segregation by Muni	Approved	6/30/2014	\$111,707.00
111	SAV Three Distinct Tones	Approved	8/4/2014	\$46,634.00
112	Modify TAP Vending Machine to Improve Purchases	Approved	8/4/2014	\$250,000.00
113	ADA TVM Upgrades for CN No. 162 and 150 Replacement TVMs	Approved	8/5/2014	\$416,815.00
114 A	UFS Equipment for Gold Line Foothill Extension	Approved	8/25/2014	\$1,878,756.00
114 B	UFS Equipment for Expo Phase	Approved	8/25/2014	\$3,783,200.00
115	FBX External Interface Spec Changes	Approved	8/19/2014	\$20,488.00
116	Willowbrook Station Blue Line SAVs	Approved	11/19/2014	\$62,882.00

117	TAP-In, TAP-In, Transfer Gate	Approved	11/19/2014	\$88,598.00
118	Virtual Gate Arrangement of SAVs at Gold Line Union Station Entrance	Approved	11/19/2014	\$84,964.00
119	Conversion of Expo 1 Aerial Stations to Fare Gates	Approved	3/2/2015	\$3,077,952.00
120	Change in Service Level Agreement for TVM & GC Network Additions at No Cost	Approved	3/2/2015	\$0.00
121	Emergency Swing Gate External Alarm Mode	Approved	11/19/2014	\$0.00
122	Installation of Colorado & 4 th Faregates & ESGs	Approved	3/2/2015	\$163,143.00
123	OCDC Replacement Equipment Software and Installation	Approved	5/12/2015	\$681,068.00
124	Expo One Claim No. 1 Settlement	Approved	5/26/2015	\$19,648.00
125	UFS Global Network, Change for Credit/Debit Processing at TVM	Approved	5/12/2015	\$52,735.00
126	Metrolink Integration Support	Approved	5/12/2015	\$56,073.00
127	Metro Network Assistance	Approved	5/12/2015	\$48,758.00
128	Division 13 Bus Operations TVMs	Approved	5/12/2015	\$99,401.00
129	Fare Equipment Changes at MRL North Hollywood Station	Approved	5/12/2015	\$577,401.00
130	Installation of Additional TVM at MRL Civic Center Station North Entrance	Approved	7/15/2015	\$21,593.00
131	Relocate One TVM From Hawthorne to Hollywood	Approved	9/2/2015	\$31,983.00
132	Service Provider Support – Deductive Change (Mod 109)	Approved	6/13/2015	(\$66,777.00)
133	Additional Emergency Swing Gate for Expo 2	Approved	6/3/2015	\$10,970.00
134	Metrolink Support for LU Encoding	Approved	10/7/2015	\$13,666.00
135	Emergency Swing Gate Hinge Post Substitution at Expo 2 Bundy Station – No Cost Change	Approved	10/21/2015	\$0.00

136	Relocation of TVMs at MGL Artesia Station	Pending		\$0.00
137	(Not Used)			
138	Vertiba Support (Salesforce – CRM)	Approved	8/20/2015	\$9,671.00
139	Regional Inter Agency Transfer Policy Change	Approved	1/21/2015	\$435,000.00
139.01	Regional Inter Agency Transfer (IAT) Policy Change	Approved	7/15/2016	\$480,000.00
140	54 TVMs, purchase and insctall	Approved	4/14/2016	\$5,194,834.00
141	(Not Used)			
142	Network, back office station configuration and IAT support	Approved	4/25/2017	\$14,578.00
143	Reduction in monthly PM services	Approved	5/8/2017	(\$404,550.00)
144	20 BMV Install Kits	Approved	5/8/2017	\$10,310.00
145	Sales, Use, Activate, Initialize and read transactions into Nextfare	Approved	5/25/2017	\$0.00
146	TVM Screen Flow Phase 2	Approved	6/30/2017	\$475,000.00
147	Revisions to Mod 140/CN 185.03 TVM Deployment Scope of Work	Approved	8/28/2017	\$0.00
148	405 BMVs and 480 Install Kits	Approved	11/20/2017	\$990,059.00
149	UFS Equipment for Crenshaw/LAX	Approved	12/1/2017	\$5,920,997.00
150	CPA Change to Include Terminal ID	Approved	10/18/2017	\$45,487.00
151	UFS Equipment for Regional Connector	Approved	12/1/2017	\$3,316,556.00
151.01	Revisions to CN/Mod for Regional Connector Claim	Approved	3/28/2022	\$42,148.00
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	4/4/2018	\$165,337.00
153	Network Back Office Configuration	Approved	4/12/2018	\$37,222.00
154	TAP System Wide Upgrades	Approved	6/28/2018	\$22,104,750.00
155	TAP System Support Services	Approved	4/25/2019	\$68,220,642.00
155.01	Maintenance of CLAX/Regional Connector	Approved	9/22/2022	\$1,054,539.00
155.02	TAP 2.0 System Maintenance Support Services	Pending	Pending	\$78,883,737.00
156	Latitude/Longitude to A102 Reports	Approved	6/29/2018	\$14,994.00
157	Willowbrook/Rosa Parks Station Improvements	Approved	10/25/2018	\$2,622,560.00
158	Net Backup DPOO License & Support	Approved	6/7/2019	\$55,281.00
159	Procure Additional BMVs	Approved	6/27/2019	\$434,680.00
160	Q-Radar License Renewal	Approved	5/14/2020	\$53,647.00
161	Additional ITS Network Equipment/Regional Connector Project	Approved	7/23/2021	\$57,860.00
162	Additional ITS Network Equipment/CLAX Station	Approved	7/23/2021	\$124,591.00
163/163.01	UFS Equipment for Purple Line Extension, Phase 1 Project	Approved	10/1/2021	\$4,038,756.00
164	Fare Capping Project	Approved	10/22/2021	\$5,662,667.00
165	Replacement of BMVs for All Door Boarding	Approved	2/24/2022	\$9,545,440.00
165.01	Bus Mobile Validators (BMVs) for TAP Municipal Operators & Micro Transit services	Approved	7/27/2023	\$4,032,850.00
166	LIFE Fare Capping for Regular Cards	Approved	4/6/2022	\$149,888.00
168	Non-RMP Changes & Promo Card Enhancements	Approved	6/23/2022	\$387,000.00
169	QRadar License Renewal	Approved	6/30/2022	\$90,055.00
170	UFS Equipment for AMC/96 th St Station	Approved	9/20/2022	\$3,660,472.00

171	Fare Capping Phased Approach	Approved	2/14/2023	\$274,940.00
172	Rolling Weekly (7-Day) Pass	Approved	3/8/2023	\$1,255,979.00
173	TAP Core Server & TVM Upgrade Project	Approved	6/22/2023	\$12,364,519.00
174	TAP System Enhancements	Approved	6/27/2023	\$481,116.00
175	UFS Equipment for PLE/Gold Line /WRP	Approved	3/28/2024	\$10,394,406.00
176	TAP 2.0 System Upgrade	Pending	Pending	\$66,423,946.00
	Modification Total:			\$478,883,013.79
	Original Contract:		2/28/2002	\$84,003,444.00
	Total:			\$562,886,457.79

DEOD SUMMARY

UNIVERSAL FARE SYSTEM / OP02461010001
UNIVERSAL FARE SYSTEM, SUPPORT SERVICES / OP02461010MAINT000

A. Small Business Participation

Cubic Transportation Systems, Inc. made a 5.65% Disadvantaged Business Enterprise (DBE) commitment. The project is 90% complete and the current DBE participation is 6.43%, exceeding the commitment by 0.78%.

<u>Subcontractor Name</u>	<u>Ethnicity</u>	<u>% Commitment</u>	<u>% Current Participation</u>
American Alloy Fabrication	Caucasian Female	0.25%	0.25%
Lows Enterprise, Inc.	Black American	0.13%	0.03%
TechProse	Caucasian Female	0.41%	0.05%
Robnett Electrical	Black American	2.53%	5.78%
Priority Manufacturing	Caucasian Female	0.93%	0.03%
J-Tec Metal Products	Hispanic American	0.13%	0.03%
KLI, Inc.	Asian-Pacific American	0.25%	0.07%
Kormex Metal Craft	Asian-Pacific American	1.02%	0.19%
	TOTAL	5.65%	6.43%

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this modification.

C. Prevailing Wage Applicability

Prevailing Wage requirements are applicable to this project. DEOD will continue to monitor contractors' compliance with the State of California Department of Industrial Relations (DIR),

California Labor Code, and, if federally funded, the U S Department of Labor (DOL) Davis Bacon and Related Acts (DBRA).

D. Project Labor Agreement/Construction Careers Policy

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

Item #14 - TAP Plus

Frequently Asked Questions (FAQ)

OPEN PAYMENT/ACCOUNT-BASED

Q 1. Are there opportunities for interoperability with other vendors and products, including third party QR codes?

- Yes. TAP Plus can offer integration of third-party QR codes such as AMTRAK, Metrolink, LOSSAN, and LA28 for seamless travel and special events. TAP Plus can offer connections with social services (DPSS, EBT, SNAP, Cal-Fresh) and third-party mobility services (scooters, ride-hailing, parking, EV charging).
- Further, the legacy back office system (Cubic) is currently connected to various third-party devices and services contracted by Metro, including Salesforce, PAX (Point of Sale devices), Masabi QR readers (Metrolink rail gates), Genfare (Farebox), Getac (DCC), Xerox (CAD/AVL system), Qikcell (4G Router), Palo Alto (Routers), IBM servers, Verizon and T-Mobile, Axiom (fare enforcement app, citation and validation for parking), APIs for Metro Parking and Bikeshare, InComm (Retail TAP cards), and Oracle (database).
- Integrated event ticketing has been launched, connecting Masabi, Metro, and Cubic. Currently, QR code readers are only at rail stations, while buses use flash passes. Plans are underway to expand QR code readers across the entire system under the TAP Plus proposal, allowing for QR code fare validation across Metro and 26 transit agencies. Each agency can utilize unique QR codes for city events.

Q 2. Will the vendor use open-source software for this development?

Open-source software is computer software that allows anyone to use, study, change and distribute it for any purpose. The vendor will use open-source software where possible and has a similar agreement with NY MTA. Open-source software is required in this proposed amendment.

Specifically, under the TAP Plus proposal, the fare collection system combines commercial off-the-shelf (COTS) solutions, open-source software, and proprietary elements.

Q 3. How will Metro ensure customers are involved throughout the process?

There are two ways customers will be involved in the Tap Plus development and rollout: market research through surveys and focus groups and user experience testing. Customers include riders from Metro and 26 Muni agencies, LIFE and GoPass participants, Seniors and Persons with Disabilities, and community members. In the Summer of 2024, TAP will create and disseminate a customer survey to assist staff in the customer interface of open payment and the account-based system. This survey would be followed by focus groups comprised of members of the public to gather supplemental feedback to aid in TAP Plus development. These efforts will ensure customers have input and that the development of TAP Plus is aligned with their needs and expectations.

Additionally, a core group of customers will perform thorough testing and feedback to assess the customer experience and usability of each new feature. In Spring 2025, TAP will begin with outreach efforts to organize and recruit core group testers. Testing will begin on open payment in the Summer of 2025 and will continue through

implementation in the Spring of 2026. In Fall 2026, account-based testing will begin and continue through implementation in Winter 2026/2027.

Q 4. What are Metro's plans for the mobile app consolidation, and how does that integrate with this upgrade?

TAP Plus is flexible and designed to integrate with third-party vendors. Metro's mobile app vision is to provide a consistent, accurate, and intuitive experience for customers to pay, plan, report and communicate across services. The Mobile App Working Group is preparing an RFP, with a final recommendation expected in late 2024.

PROCUREMENT/VENDOR

Q 5. Why is Metro issuing a change notice to the current contractor and not an RFP?

There are four primary reasons for continuing with the current vendor:

1. Complexity of the system: TAP serves 27 transit agencies, manages over 700 fare product variations, the TAP mobile app, website, and 1,500 TAP retail vendors. This requires a vendor that has experience with large agencies like New York, Chicago, San Francisco, and Boston.
2. Timeline: To meet the expectations of customers who will descend on Los Angeles with the World Cup, Super Bowl, and Olympic Games, Metro needs to get started immediately. Open payment will be delivered before the 2026 World Cup and by early 2027 the account-based system will be completed. This timeline would not be possible if Metro undertook a new procurement.
3. Leveraging Metro's current investment: Metro has millions of dollars invested in the current system. This includes 550 TAP Vending Machines, 4,000 fareboxes across 26 operators, 931 rail gates and station validators, etc. This equipment is proprietary, and although Metro might be able to find a vendor that would be willing to work with the current vendor to switch over, it would be far more expensive, would require the replacement of all readers at a minimum, and may not be ready in time to support the World Cup, Super Bowl, Olympic Games.
4. Cost: Metro estimates that the cost of going with another vendor ranges from \$750 million to integrate current equipment to \$2 billion to purchase all new equipment. Estimates are based on what San Francisco, Chicago, Boston, and New York are paying to upgrade or replace their systems.

Q 6. Why does Metro want to meet the deadline for the 2026 World Cup rather than the 2028 Olympics?

This timing will allow Metro to stress test systems during significant sporting events to ensure they are ready to support the expected millions of customers during the Olympic and Paralympic Games.

Q 7. What remedies does Metro have if the vendor is late with the project schedule or does not perform?

Metro may withhold 10% retention from each invoice until a total of 50% of the contract modification value has been billed. The retention withheld will not be released until Metro is satisfied with the delivery of the project. This amount could be as much as \$33.5 million.

Item #14 - TAP Plus

Metro can also assess liquidated damages for missing milestones and completion dates subject to an 8% maximum monetary penalty. This could amount to as much as \$5.36 million in fines.

The vendor will face penalties of \$10,000 per day for each milestone, with a maximum of \$700,000. This is an enhancement to the current agreement.

Additionally, Metro can Termination for Convenience without cause at any time, in whole or in part, as determined by the MTA in its sole discretion or Terminate for Default if the vendor fails to perform any material work or provide any system component within the schedule specified in the contract.

Q 8. Where has Cubic successfully launched open payment systems?

The vendor successfully launched open payment in the following other cities:

- London - 2012
- Chicago - 2013
- Miami - 2019
- Vancouver - 2018; added Amex in 2019 and Interac Debit in 2023
- Sydney - 2020-2021
- Brisbane - 2022
- New York - 2021-2022

Q 9. If Metro is experiencing delays in development or rollout, what is our drop-dead date for changing course?

Below are preliminary deadlines and milestones. Metro has engineers and testers on staff and its own TAP test lab. Metro could receive preliminary open payment software as early as June/July of 2025.

Deliverables/ Milestones	Event	Acceptance Criteria	Delivery Date
1	Approval of Schedule	Cubic deadline and responsibilities formally documented within a Project Schedule per SOW requirements. Metro shall have (20) business days following receipt of formal Cubic schedule to provide comment and approval	Jul-24
2	Hardware Procurement	Cubic submission of an ERA report exhibiting material order	Aug-24
3	Approval of Final Design Document	Once Cubic submits FDR document, Metro shall have (20) business days following receipt of formal Cubic FDR to provide comment and approval	Nov-24
4	Approval of Test Plan	Once Cubic submits Test Plan document, Metro shall have	Feb-25

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		(20) business days following receipt of formal Cubic Test Plan to provide comment and approval	
5	Phase 1 (Open Payment) SIT	Cubic completion of Open Payment SIT with a pass rate in Cubic QA environment	Aug-25
6	IAT Completion	Successful passage of hardware Installation/Acceptance Testing (IAT)	Feb-26
7	Rollout of Open Payment	Metro deployment of Open Payment to the field	Apr-26
8	Phase 2 Account-Based SIT	Cubic completion of Account-Based SIT with a pass rate in Cubic QA environment	Oct-26
9	Rollout of Account-Based system	Metro deployment of account-based to the field	Dec-26
10	Full system acceptance	Successful completion of migration to account-based	Aug-27

Q 10. Can Metro provide more detail about the factors that went into the price analysis and technical evaluation that were used to arrive at the independent cost estimate?

- For equipment and installation, staff used previous change notices to determine fair and reasonable hardware and labor costs.
- For software development, staff determined the level of effort required in terms of hours multiplied by the hourly rates per labor category and determined that the rates were fair and reasonable based on industry standards.
- For cloud hosting, staff consulted with the IT department and determined the costs were fair and reasonable.
- For PCI, staff consulted with the IT department to determine the annual costs and used the costs to compare them against Cubic’s annual costs and determined that they were fair and reasonable.
- For Support Services, staff used the current agreement’s cost elements and extrapolated forward for four years using the same annual increase, year to year, and adjusting for current in-service quantities of equipment.

Q 11. If Metro does move forward with the contract extension and scope change, and decides 4 years down the line that it wants to part ways with Cubic or decouple the open payment component, what does that process look like, does Metro own the new hardware, software, and data, and would this system allow for a seamless transfer or integration?

Yes, Metro owns all the equipment and data. Metro is purchasing a subscription for the software. Uncoupling elements is not recommended as it would require multiple readers on the system and at least two back offices. To achieve a fully integrated system like Metro has now, both systems operated by different vendors would have to communicate in real time. This could be extremely complex and costly and is not recommended.

If Metro decides to part ways due to performance issues, staff would issue an RFP to collect proposals for two options:

1. Require a vendor to integrate their software with the current equipment. This would require the replacement of the readers (proprietary), new software to run the equipment, and a new service agreement. This new system would be expected to run in parallel with the current system for up to two years as Metro transitions customers and 26 TAP partner transit agencies.
2. If the equipment cannot be operated by a new vendor or it is deemed that the current equipment needs to be replaced to ensure compatibility, then staff would solicit proposals calling for a total replacement of all fare collection equipment, including TAP vending machines, gates, station validators, bus validators fare boxes TAP mobile app and website. This would require a much longer transition (3 to 5 years) as replacement equipment must be designed to fit Metro’s requirements and produced as ordered.

ALTERNATIVES CONSIDERED and WHAT ARE OTHER CITIES DOING?

Q 12. Why didn’t Metro consider going with Cal-ITP?

Cal-ITP does not support our current system, and they will not be able to convert the current card system to an open payment system. Cal-ITP does not have a solution to upgrade Metro’s fare gates or bus validators for integrated event ticketing. Cal-ITP does not have a proven track record with large complex transit agencies.

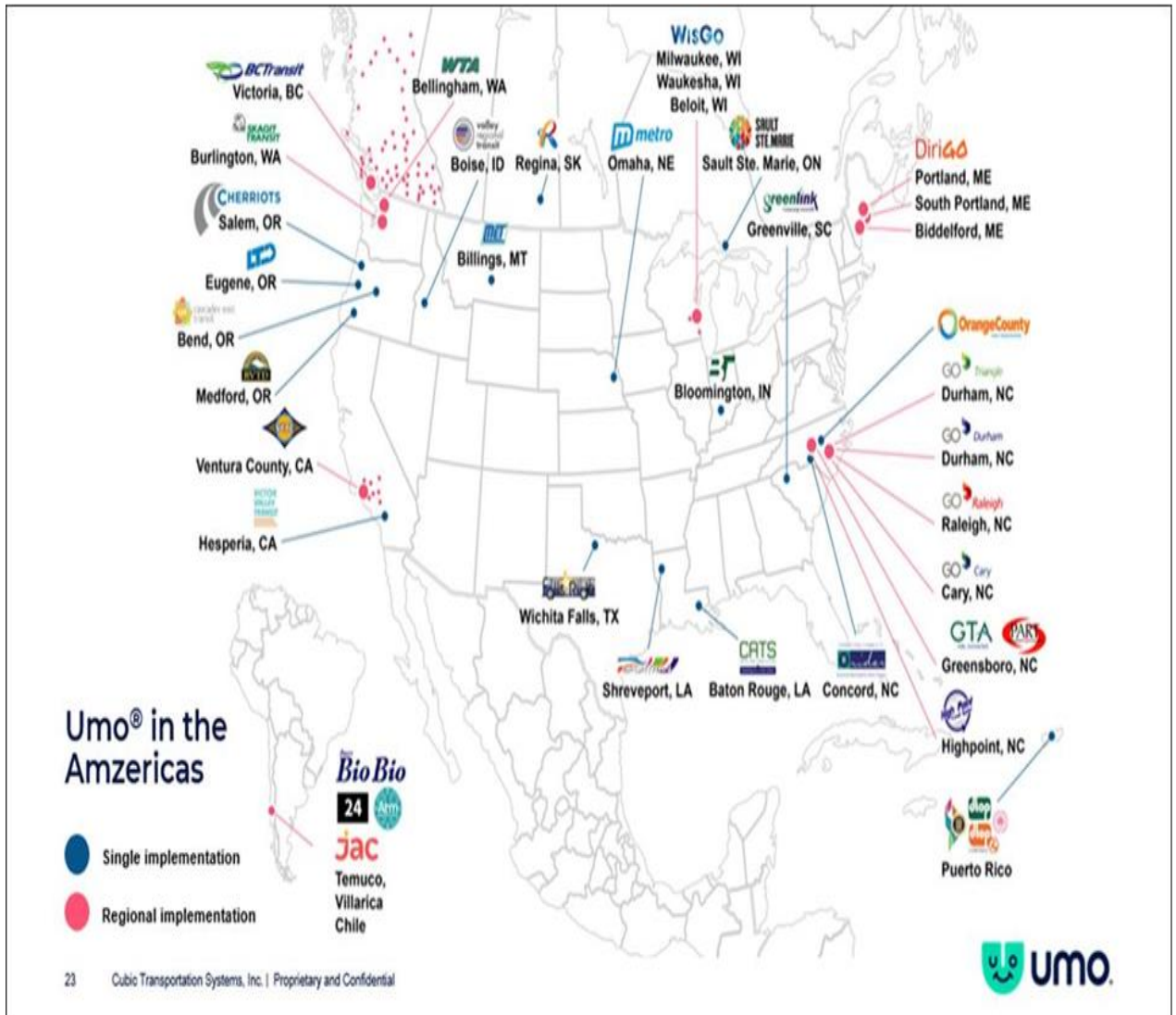
Q 13. What other cities are currently supported by Cubic?

Larger Transit Agencies

» CUBIC – MAJOR MARKET CUSTOMERS



Smaller Transit Agencies



Q 14. Are there any other vendors supporting large transit agencies?

There are no vendors that support a large transit agency with as many partner agencies (26) as LA does.

Q 15. Have other cities served by Cubic experienced delays or budget overruns?

Several agencies have experienced delays and cost overruns. Metro staff identified four reasons for delays and budget overruns in cities served by Cubic.

1. Core issues include upgrading from magstripe or non-legacy systems to open payment and account-based systems, which are more complex.
2. Delays are due to development challenges and agency internal organizational issues.
3. In some cases, the complex, privately financed project faces administrative and technical challenges during migration.
4. Integration with third-party devices introduces new technical complications and extends timelines.

Q 16. What will Metro do to avoid problems that other cities have experienced?

By considering the following factors, Metro can avoid the issues that others are facing.

1. Metro is leveraging existing infrastructure and hardware with Cubic, while other systems are being built from the ground up, replacing their existing systems. Metro saves time since its legacy system is Cubic.

2. Metro has a clearly defined scope of work and KPIs and will strictly adhere to them.
3. Metro is leveraging its existing customer relationship management system, unlike other cities migrating to new CRMs.
4. Cubic has deployed open payment in other cities, providing Metro an advantage to deploy faster and free of bugs.
5. Metro also has an internal team of testers and engineers who are well-versed in the fare collection system. This team provides additional expertise to keep Cubic on track, closely monitors the project against the plan and budget, and conducts robust internal testing.

Q 17. Is Cubic a defense contractor too?

Yes. Cubic has two separate business units, Cubic Transportation Systems (CTS) and Cubic Defense. CTS has separate management and Profit and Loss Statements. Metro’s contract is with the CTS.

GLOSSARY OF TERMS

Term	Definition
Closed Loop	A closed loop card is a payment card that the cardholder can use only at a particular retailer or other company. Our TAP card is a closed loop card. All information is kept on the card.
Commercial Off-the-Shelf (COTS)	Commercial-off-the-shelf or commercially available off-the-shelf products are packaged or canned hardware or software, that is ready-made and available for sale to the general public or organizations, rather than commissioning custom-made, or bespoke, solutions. The vendor will use COTS software, where applicable, to support the fare collection system.
Contactless Payment	Contactless payment systems are credit cards and debit cards, key fobs, smart cards, or other devices, including smartphones and other mobile devices, that use radio-frequency identification or near-field communication for making secure payments.
Open API (Application Programming Interface)	An open API is a publicly available application programming interface that provides developers with access to a software application or web service. Open APIs are APIs that are published on the internet and are free to access by consumers.
Open Loop	Open-loop payment technology is built upon international EMV standards meaning any rider can use their everyday bank issued contactless EMV credit or debit card or their smart device to pay for their travel.
Open Payment	Open payments allow commuters to use their existing Visa cards or mobile payment apps to pay for their transit fares. There's no need to queue up for a ticket or top-up a

Term	Definition
	transit-specific card. Just tap your Visa card or mobile device on the reader and go.
Open Source	Open-source infrastructure is technology specifications that are not proprietary. Open-source architecture means that a given software can be integrated with other software sources, whereas a closed source or proprietary architecture can only use the services or integrate with technology from a single origin.

TAP Plus

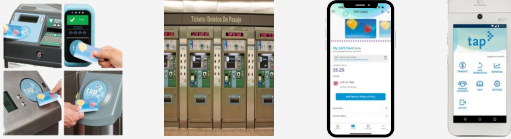
Board of Directors Meeting
May 23, 2024



TAP

THE CURRENT SYSTEM

For Metro and 26 TAP partner transit agencies



- Taptogo.net Website
- TAP Customer Service
- Multi-Modal Mobility
- Integrated Ticketing System

TAP fare is accepted at
4,000 fareboxes, 1,330 bus mobile validators, and 931 rail gate and stand-alone validators.

TAP fare is sold at
Web (taptogo), the mobile app (TAP LA), 550 ticket vending machines, and 1,540 retail point of sale (RPOS) devices.



New and improved equipment

New BMVs Station Validator Rail Gate

Open payment

supports new payment options

Go Pay VISA MasterCard AMERICAN EXPRESS DISCOVER NETWORK

Account-based

- Increased capacity to handle orders for GoPass, GO TAP, B-TAP, E-TAP, U-Pass, and I-TAP
- LIFE customers can easily load 20-Ride or monthly pass without calling Customer Service or going to a vendor

GoPass LIFE

Interoperability

Increased integration with third-party partners

Decision Factors

<i>Areas</i>	<i>Objective</i>	<i>Proposed Vendor</i>	<i>Other Vendor</i>
Complexity	Robust system to support/integrate with open payment and account-based for: <ul style="list-style-type: none"> • Metro and 26 transit operators • 700+ fare products • GoPass • LIFE • Various Reduced Fares • Metro Micro and other micro services • Bike Share • Integrated Ticketing 	Large/peer systems are currently supported by the same vendor and successfully launched open payment: <ul style="list-style-type: none"> • London (2012) • Chicago (2013) • Vancouver (2018) • Miami (2019) • Sydney (2021) • New York (2022) • Brisbane (2022) • San Francisco Bay Area (pilot) • Boston 	There are seven major vendors providing fare collection services, but there are none other than Cubic serving transit agencies as large and complex as Metro and 26 other agencies. Cal-ITP offers only a partial solution. (Not a vendor)
Timing	2028 Olympic readiness	Implementation: 2 years Open payment delivered by World Cup 2026 Account-based delivered by end of 2026	RFP: 12 months Implementation: 3-4 years Total: 5 years
Risks	Minimize delays; penalties and withhold payment for delays	Delays result in penalties and withholding payments	Requires complete cooperation between competitive vendors because equipment is proprietary; delays from coordination and Metro and muni integration with onboard software and hardware
Equipment	Utilize current equipment; modify and add where necessary	Maximizes current hardware	May integrate with existing hardware or may require new hardware
Performance	Over 98%	97.96% over past five years	Unknown at this time
Cost	Lowest cost possible while maximizing existing assets and investments	\$66.4 million for 27 operators	\$750 million to \$2 billion for 27 operators

Penalties for Delays and Performance

Penalties for Capital Upgrades

- The vendor will face penalties of \$10,000 per day for each milestone, with a maximum of \$700,000. This is an enhancement to the current agreement.
- Metro may also withhold 10% retention from each invoice until a total of 50% of the contract modification value has been billed. The retention withheld will not be released until Metro is satisfied with the delivery of the project. This amount could be as much as \$33.5 million.
- Metro can also assess liquidated damages for missing milestones and completion dates subject to an 8% maximum monetary penalty. This could amount to as much as \$5.36 million in fines.
- Payments made only at completion of milestones

Contract Termination

- Contract can be terminated for convenience or for cause at any time

Maintenance Support Performance

- Vendor delivered fare capping on time and within budget
- Maintenance service: TAP equipment has operated at a 97.96% level for past five years

User Experience Testing

- TAP Plus upgrades are based on direct feedback from riders and TAP Partner agencies
- TAP will work with a robust customer group to perform user experience testing.
 - Core group to include riders from Metro and Muni agencies, LIFE and GoPass participants, Seniors and Persons with Disabilities, community members, and employees from various internal Metro departments.
- In Summer 2024, TAP will disseminate a customer survey to assist staff in the customer interface of open payment and the account-based system.
 - Followed by focus groups comprised of members of the public to gather supplemental feedback to aid in TAP Plus development.
- In Spring 2025, TAP will begin with outreach efforts to organize and recruit core group testers.
- Testing will begin on open payment in the Summer of 2025 and will continue through implementation in the Spring of 2026.
- In Fall 2026, account-based testing will begin and continue through implementation in Winter 2026/2027.