

**Board Report**

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**OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE  
OCTOBER 20, 2022****SUBJECT: ETHERNET SWITCH****ACTION: AWARD CONTRACT FOR ETHERNET SWITCH****RECOMMENDATIONS**

AUTHORIZE the Chief Executive Officer to award a one-year Indefinite Delivery/ Indefinite Quantity (IDIQ) Contract No. MA89960000 to Peacock Systems, the lowest responsive and responsible bidder for Ethernet Switches in the total contract amount of \$2,868,135.69, inclusive of sales tax, subject to resolution of any properly submitted protest(s), if any.

**ISSUE**

All Door Boarding (ADB) is one of the key components in the NextGen Bus Plan to improve transit speed, reliability, and customer experience. ADB was successfully piloted with Bus Mobile Validators (BMVs) installed on the J Line (Silver) 910/950 in 2016 and Metro Rapid Lines 720 and 754 in 2018 for fare collection. However, these BMVs are approaching obsolescence since they operate on 3G cellular technology, which will no longer be supported by cellular carriers that have moved to 4G and 5G technologies. The expansion of ADB to Tier One and Tier Two networks, as outlined in the NextGen Bus Plan, involves purchasing and installing the ethernet 16-port switches and second-generation BMVs at all doors of each bus to process Transit Access Pass (TAP) card fare payments.

The ethernet switch allows the new, second-generation BMVs to connect to the farebox to transmit updated bus assignment data and fare tables to the BMVs remotely and instantly without relying on manual configurations, providing greater operational flexibility to ensure buses can be assigned to different lines on a given service day. The ethernet switch will also allow the new BMVs and fareboxes to connect to the bus router for modern cellular communications. These 16-port managed switches will also be used to expand and upgrade other onboard systems such as the automatic passenger counters (APC), head signs, Smart Drive incident recording system, and vehicle health monitoring system.

**BACKGROUND**

The procurement of the ethernet 16-port switches supports the transition to ADB, which results in a

more even distribution of the passenger loading, reduced passenger flow friction between passengers boarding and exiting the front door, particularly when a wheelchair ramp is deployed, and reduced passenger crowding around Metro bus operators.

In 2018, Metro began redesigning the bus system to better meet the needs of current, former, and future riders. The Metro Board authorized the NextGen Bus Plan in February 2020 for public review. The Plan proposed improvements that would speed up buses, double the number of frequent Metro bus lines and provide over 80% of current bus riders with all day, frequent service. The Plan would also ensure walking distance access to transit for 99% of current riders and improve the waiting experience. Based on the NextGen Bus Study, the primary benefits of All Door Boarding are estimated to be 2.5% travel time savings. The 2.5% travel time savings refers to the estimated systemwide reduction in time for customers to reach their destination due to the reduced dwell time at each bus stop along routes throughout the Metro service area. ADB expedites boarding and reduces dwell time at bus stops, thereby enhancing convenience and reducing travel times for bus riders.

## **DISCUSSION**

The ethernet 16-port switches will allow for the implementation of the second generation BMVs in support of the NextGen Bus Plan, along with new and equitable initiatives built on the TAP card platform, such as the Fareless System Initiative (FSI), Low Income Fare is Easy (LIFE) and Fare Capping programs. The system capacity will be expanded to support these programs since the new BMVs have increased capacity to deliver over 50% more autoloads than the existing BMVs. The new BMVs operate more quickly and reliably, enhancing customer experience as they board the bus.

Installation of the 16-port managed ethernet switch allows for automatic configuring of BMVs to support ADB and automatically enables bus assignments to be uploaded to BMVs without requiring manual configuration by staff during the daily rollout. The installation of an ethernet switch will allow the farebox and BMV to communicate with the TAP back office via the bus router with modern cellular communications, which will result in eliminating the overlapping monthly cellular service fees for fareboxes and BMVs, with an estimated \$66,000 in monthly savings.

## **DETERMINATION OF SAFETY IMPACT**

Boarding access to all doors means a more even distribution of the passenger load, reduced passenger flow friction between passengers boarding and exiting at the front door, particularly when a wheelchair ramp is deployed, and reduced passenger crowding around Metro bus operators.

## **FINANCIAL IMPACT**

Funding of \$2,868,135.69 is included in the approved annual budget of \$6.5M in cost center 3151 under project 203049. The life of project budget is \$18.1 million for the 2<sup>nd</sup> generation BMV (Attachment C), of which \$10 million is funded by the California Transit Commission Local Partnership Program (LPP) for the purchase and installation of BMV and \$0.817 million is funded by the Bus Operations Subcommittee (BOS) for ADB activities, including TAP validators and other speed and reliability improvements.

### Impact to Budget

The source of funds for this action will come from Federal, State, and Local, including sales tax and fares. These sources are eligible for Bus Operating or Capital projects. Using these funding sources maximizes the project funding allocations allowed by approved provisions and guidelines.

### EQUITY PLATFORM

Bus transportation provides an important lifeline for the residents in underserved communities.

ADB allows for a more even distribution of the passenger load and fewer crowding conflicts at the front door. ADB also allows passengers who use wheelchairs to board with a ramp assist in the front of the bus while other passengers board from the other doors. Streamlining boarding due to ADB will reduce crowding on buses, improving onboard security and safety.

These improvements in customer experience with the implementation of ADB will benefit transportation equity by providing faster and more reliable bus service to current Metro customers and will increase the competitiveness and attractiveness of the bus system for new customers.

The Diversity and Economic Opportunity Department (DEOD) completed an evaluation of the proposal and confirmed that Peacock Systems is Small Business Enterprise (SBE) certified and approved for a sixty percent (60%) SBE commitment as a supplier.

### IMPLEMENTATION OF STRATEGIC PLAN GOALS

The recommendation supports the strategic plan Goal 1: Provide high-quality mobility options that enable people to spend less time traveling and Goal 2: Deliver an outstanding trip experience for all users of the transportation system. This project will improve the speed and reliability of Metro Tier One and Tier Two bus service that runs through the heart of some of the most congested areas in Los Angeles County with some of the most equity-focused communities. Furthermore, this project would enhance the transit customer experience in those areas by reducing dwell time and a more even distribution of passenger load to minimize overcrowding in the front of the bus.

### ALTERNATIVES CONSIDERED

The alternative is to not procure the ethernet 16-port switches required for the second generation BMVs planned to support ADB Tier One and Tier Two corridors. This alternative is not recommended since California Transit Commission has already approved funding for Metro's Speed and Reliability Improvements Program with funding for ethernet 16-port switches and BMVs to implement All Door Boarding and NextGen Transit Signal Priority Project. Delays in procuring and installing ethernet 16-port switches and BMVs may jeopardize the LLP grant award. A decision to not install the second generation BMVs for this project would negatively impact the operating budget since the existing BMVs are obsolete with dilapidated 3G cellular technology that is no longer supported by cellular carriers and is no longer supported for purchase.

### NEXT STEPS

Upon approval of Contract No. MA89960000 to Peacock Systems, the vendor will provide a schedule to Metro for delivery of the Ethernet 16-Port Switches in accordance with the program schedule for BVM installation at all doors of the Metro bus fleet

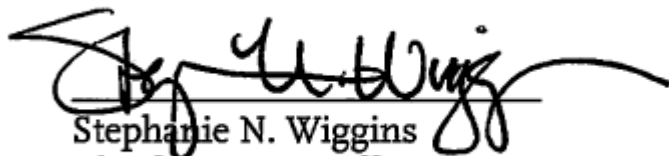
**ATTACHMENTS**

Attachment A - Procurement Summary

Attachment B - DEOD Summary

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