



Board Report

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SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MARCH 17, 2016

SUBJECT: ALL DOOR BOARDING PILOT EVALUATION

ACTION: REPORT ON THE RESULTS OF THE ALL DOOR BOARDING PILOT TEST ON LINE 720, AND APPROVE EXPANSION OF THE PILOT TO THE SILVER LINE.

RECOMMENDATION

CONSIDER:

- A. RECEIVING AND FILING report on the **evaluation results of the All Door Boarding pilot test on the Wilshire BRT** (Line 720); and
- B. APPROVING expanding the pilot program to the Silver Line (Line 910) starting Summer 2016.

ISSUE

On April 15, 2015, the Board of Directors adopted a Motion amending Item #24 of the Planning and Programming Committee. The motion directed staff to study the feasibility of All-Door Boarding (ADB) and Off Board Fare Payment on the Wilshire Boulevard BRT, as well as other applicable corridors, as part of Metro's continuing efforts to improve and enhance the transit experience and support Metro's Countywide BRT expansion. It further directed staff to assess the practical challenges and opportunities of All-Door Boarding and/or Off-Board Fare Payment. This report provides the evaluation results from a pilot test of ADB conducted on the Wilshire BRT (Line 720) between May 18, 2015 and July 10, 2015.

DISCUSSION

Background

In keeping with elements critical to the success of BRT, reducing customers' transit travel time requires improvements to three parts of their trip: wait time, in service running time and stop dwell time. The Wilshire BRT addresses wait times through high frequencies, in service running time through signal priorities and bus only lanes, but has not employed elements to address stop dwell time. The ADB pilot program tests the effectiveness of faster boarding through more efficient fare collection. The pilot intends to reduce bus stop dwell times and variability, by allowing customers with

valid TAP cards to enter at all doors.

Pilot Logistics

The ADB pilot test was conducted along Line 720 (Wilshire BRT), at the Wilshire/Vermont stop westbound during the AM peak (6:00 am-11:00 am) and the Wilshire/Westwood stop eastbound during the PM peak (2:00 pm - 7:00 pm), from May 18, 2015 to July 10, 2015, on weekdays only. Metro customer service representatives were on site to provide information on the pilot project and reminded passengers with valid TAP cards that they could board through any door. Vehicle Operations Supervisors were also present to monitor on-street operations. Prior to commencing the pilot, a comprehensive marketing and outreach effort was conducted. Staff was also available at each stop one week prior to implementation to distribute information on the pilot project and answer questions.

Scope of Evaluation

While ADB can result in true dollar cost savings and revenue impacts, the perceived benefits and drawbacks of the program should be considered equally important in the evaluation, given its influence on service quality and ridership. Therefore, the scope of evaluation of the ADB pilot consists of:

- Calculated dwell time savings and its impact on resource requirement and service reliability;
- Estimated impact to fare evasion;
- Customer perceptions of the benefits and drawbacks of implementing ADB;
- Other challenges and opportunities identified through peer agency review and observations from the ADB pilot program.

Peer agency reviews were also conducted for comparison and guidance on lessons learned. The agencies contacted were MTA in New York, MUNI in San Francisco, King County Metro in Seattle, Washington, and Translink in Vancouver, Canada. Each of these systems implemented ADB in different ways based on the needs of their system and other considerations.

Findings

Attachment B provides a detailed evaluation report. Overall, the ADB pilot demonstrated that there can be resource savings from a reduction in dwell time. In addition, reducing the range (or variability) in dwell time helps to improve the line's overall reliability and headway regularity.

Based on data collected, overall dwell time decreased because boarding is distributed among three doors instead of being limited to the front door only, reducing the overall per person time for boarding. Dwell time per passenger dropped from 4.35 seconds to 2.96 seconds, a decrease of 1.39 seconds

per passenger, or 32.0%. Dwell times can be further reduced by an additional 1.41 seconds, to 1.55 seconds, by restricting boardings to “TAP only”. In this scenario, cash payments would not be allowed on board the bus.

In addition, access to all doors means there may be a more even distribution of the passenger load, and less time would be spent boarding and sitting down on buses. As such, there can be less boarding-related safety hazards, fewer opportunities for customer injuries, and less delay before the operator departs from the stop.

The more significant benefit of ADB is the perception of better service, which heavily influences a passenger’s decision to use transit. Based on the customer survey conducted as part of the pilot, only 7% of the passengers were not in favor of the program; the overwhelming majority (82%) look forward to its implementation.

Operator and Supervisor feedback also indicates that they believe the ADB project is good for the system and they would support its implementation. Comments from the pilot test debrief sessions included:

- A noticeably shorter dwell time when there are more than ten people boarding;
- The customers being better able to see the available seating on the bus; and
- A reduction in confrontations with passengers regarding fares, which would help avoid disputes and operator assaults.

While ADB can result in real and perceived benefits, the greatest challenge to implementing ADB is the impact to fare evasion. With ADB, passengers are able to bypass the operator by boarding at the un-manned middle and rear doors. Concerns that this policy would induce more fare evasion were voiced by all peer agencies interviewed as well as Metro employees and customers prior to and during the pilot test. Unfortunately, the data collected from the fareboxes and SAVs during the pilot test were inconclusive regarding the impact of ADB on fare evasion. Regardless, public perception is that ADB will induce more customers to evade paying their fare. Metro employees stationed at the pilot locations along with operators of Line 720 also perceived fare evasion as a result of ADB, and all peer agencies interviewed agree, and have implemented a fare enforcement program as part of their ADB project.

Silver Line Pilot

Given the success of the Line 720 ADB pilot conducted from May - June 2015, staff recommends extending the pilot to the Silver Line for a period of 6 months starting in Summer 2016. The Silver Line is an ideal candidate given that dwell time benefits of ADB are much greater for lines that have high levels of boardings per stop compared to those with fewer boardings. In addition, cost efficiencies from reduced running times are much greater for lines with higher frequencies than those

with fewer trips per hour. Finally, lines with more transit priorities to help increase running time speed and reliability would benefit more from ADB as the dwell times are a greater percentage of running time compared to lines that have slower in service speeds. The Silver Line exemplifies all of these characteristics.

The pilot test conducted on Line 720 from May to July 2015 was limited to two stops, during certain time periods only. The Silver Line pilot would be expanded to include all stops all of the time by installing mobile validators (MV) at all doors of the bus allowing passengers to TAP as they enter any door on the bus. As with the Line 720 pilot, the greatest concern is fare evasion. Currently it is difficult to check the fares of all passengers on the bus because not all passengers are provided a proof of payment (e.g. cash and token passengers). Therefore, the Silver Line pilot would require that all passengers pay their fare with a valid TAP card so fare enforcement officers can “sweep” the buses and check for valid TAP cards. A Title VI/Environmental Justice fare equity analysis of this fare change is included in Attachment B.

To address the issue of Cash and Token passengers not being able to board, Ticket Vending Machines (TVM) are being installed at key stations such as Harbor/Gateway. Fareboxes will also be programmed with “Top Off” capabilities, to allow passengers to add stored value to cards on board at stops that are not near TMVs or TAP vendor outlets. In addition, passengers loading their cards remotely through the taptogo.net website or by phone will benefit by being able to use their fare within an hour of load by tapping on a mobile validator, compared to 24-48 hours at the farebox. Finally, as TAP cards replace tokens as a means of providing transportation benefits to social service program clients (who are the primary recipient of tokens) which is currently being pursued, these passengers will benefit from ADB.

DETERMINATION OF SAFETY IMPACT

Approval to expand the ADB pilot to the Silver Line will not have a safety impact to customers or employees. Indirectly, based on Operator feedback on the Line 720 ADB pilot, may reduce assaults on operators as fare enforcement, one of the major causes of conflict between passengers and Operators, would be largely transferred to law enforcement.

FINANCIAL IMPACT

The ADB pilot on the Silver Line will utilize TAP equipment currently being installed for the Silver Line. Therefore, no additional funding in the FY16 budget will be required to procure equipment for this program. In fact, the ADB pilot on the Silver Line is anticipated to save 1,500 in annual revenue service hours (RSH), or 750 RSH during the 6 month pilot period. Based on a marginal operating rate of \$100 per RSH, the pilot savings results in a reduction of \$75,000 in operating cost for FY17.

ALTERNATIVES CONSIDERED

The alternative to staff recommendation is to not extend the ADB pilot to the Silver Line. However, this is not recommended as passengers will not benefit from shorter dwell times, and Metro will not be able to reduce the FY17 operating budget by \$75,000 while maintaining the same level of service.

NEXT STEPS

Should the Board approve the ADB pilot on the Silver Line, staff will initiate an implementation plan that will include installation of equipment, a revised Silver Line schedule reflecting the shorter dwell times, fare enforcement deployment plan, Operator and passenger outreach.

Prior to the conclusion of the pilot period, staff will provide the Board with a recommendation to terminate the program, continue it on the Silver Line only, or implement ADB on other Metro Lines. This recommendation will be based on an evaluation of actual dwell time savings, ridership impacts, fare evasion rates, and passenger and Operator feedback.

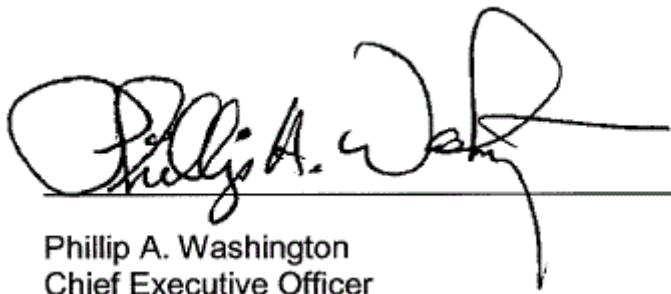
ATTACHMENTS

Attachment A - Line 720 All Door Boarding Pilot Project Evaluation

Attachment B - All Door Boarding Fare Equity Analysis - Feb 2016

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