

**COUNTY OF MILWAUKEE
INTEROFFICE COMMUNICATION**

DATE: May 15, 2012

TO: Michael Mayo, Sr., Chairperson, Transportation, Public Works & Transit Committee

FROM: Frank Busalacchi, Director, Department of Transportation

SUBJECT: Real-Time Bus Arrival and Location Information for Public Use

POLICY

MCTS periodically provides informational reports to the Committee on transit issues.

BACKGROUND

The 2012 adopted transit budget directs Milwaukee Transport Services, Inc. (MTS) to report to the Committee on Transportation, Public Works and Transit on the availability of the live feed of real-time information of bus location for computer and smart phone users, and further report on the costs of implementing electronic boards that display projected times of the next bus arrival at heavily frequented bus boarding points.

Over the past decade, computer aid dispatch (CAD) and automatic vehicle location (AVL) systems nationally have been upgraded to provide for passenger access to real-time information. The automatic vehicle location system that the Milwaukee County Transit System (MCTS) purchased in 1992 enabled management to track vehicle locations in a manner that improved on-time performance. At that time, MCTS was an early adopter of AVL technology. The original software retained data in a proprietary or closed format that was not designed to be shared in an open-source format with the public. Today's mobile applications and social media networks did not exist at the time.

MCTS has made good progress towards upgrading its 20 year old CAD/AVL system to provide real-time information to technology developers beginning in early 2013. In 2008, Milwaukee County and the Nextel Corporation began work to upgrade the vehicle location equipment on MCTS buses. The new equipment enabled MCTS to conform to a Federal Communications Commission mandate to relocate MCTS' data radio channels to new 800 MHz frequencies. In addition, the new equipment provided MCTS operators and supervisors with enhanced voice and data communication capabilities. In 2011, MCTS took another step forward in upgrading the CAD/AVL system that would allow the transit system to distribute AVL data through a variety of formats including real-time information displays. This step involves an upgrade of MCTS' dispatch office hardware and software and additional communication equipment on MCTS' 426 buses. Upon successful completion of factory testing of the new software for the CAD system, equipment installation will occur on the bus fleet beginning in August 2012. The project is scheduled to be completed in December 2012.

Upon completion of the CAD and AVL system upgrades, MCTS will need to purchase a software add-on that will allow developers to have access to the real-time AVL data which can result in increasing passenger information through creation of smart phone and web-based applications. We estimate the cost of the software is about \$250,000. Real-time bus stop arrival applications can provide waiting passengers

May 15, 2012

Page 2

with expected bus arrival information and related transit system information thereby decreasing their wait time.

Electronic display boards can be used as an effective means to provide next bus arrival information for customers. Rugged, all-weather display signage can cost in the range of about \$15,000 to \$20,000 per display board, not including installation cost which may vary from location to location. There are dozens of locations in Milwaukee County where signs would benefit large numbers of passengers; however locations where passengers transfer to other bus routes would be most ideal for the investment. Transfer corners have up to four bus stops and as such could require four individual display signs. If state or federal grants are available for such a project, they could cover about 80% of the capital cost, leaving 20% as a local share. Operating expenses such as electricity usage, sign cleaning/maintenance and software maintenance would be added as a transit operating expense.

In summary, upgrade of existing automatic vehicle location system software and hardware with data interfaces necessary for live feed of data is expected to be completed by December 31, 2012. MCTS anticipates that real-time bus arrival and location data will be available in an open-source format by Spring 2013. Real-time bus stop arrival applications will enhance customer service by providing waiting passengers with the expected time that their bus will arrive thereby decreasing their wait time. Electronic signage at high usage bus stops can also be used to display real-time bus arrival and location information. A project of this nature will require a substantial capital cost investment and on-going operating costs. Electronic display signs are estimated to cost up to \$20,000 per board plus installation and operating expenses.

RECOMMENDATION

This report is informational only.

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Approved by:


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