Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
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Los Angeles, CA

Metro

Board Report

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SYSTEMS SAFETY, SECURITY AND OPERATIONS COMMITTE
APRIL 20, 2017

SUBJECT: CUSTOMER EXPERIENCE TECHNOLOGY IMPROVEMENT

ACTION: RECEIVE AND FILE STATUS REPORT

RECOMMENDATION

RECEIVE AND FILE status report on efforts underway to use technology and innovation to transform the **customer experience of Metro's Bus and Rail system**, and mobility in the region in general.

ISSUE

This report provides key accomplishments and technological activities since the last update in January 2017 to further the goal of improving the customer experience as well as a look-ahead to the next update in July 2017.

DISCUSSION

This following is a summary of progress on customer focused activities for the referenced time period.

1. Enterprise Unified Passenger Information System (digital signage) - effort initiated

The purpose of the Enterprise Unified Passenger Information System Initiative to explore unifying all of Metro's digital bus and rail countdown/information displays, Bluetooth beacons and audio announcers under a single comprehensive content management system. Metro's current count of nearly 1,000 displays will rise sharply in the next few years as new rail stations and transportation hubs are opened for public use. This high device count coupled with county-wide distribution will require an automated system to ensure high availability and consistent content. At a minimum, the system will provide for:

- Automated 24/7 network and device monitoring
- Scheduling and synchronizing real-time feeds
- Ad-hoc insertion of system alerts by Bus/Rail Operations Centers
- Advertising to generate supplemental revenue
- Predictive maintenance based on system use, error logs, device type and age

- Multi-language support for audio announcements

A Scope of Work is being developed for distribution and comment in support of an RFP to be released at the end of FY '17.

2. Partially Automated Truck Platooning - on-going

Metro's Highway Program Intelligent Transportation Systems Group and the Gateway Cities Council of Governments (GCCOG) worked with the California Department of Transportation (Caltrans) to secure a $1.6 million grant under the Federal Highway Administration's Exploratory Advanced Research Program (EARP) to study and demonstrate Partially Automated Truck Platooning. The technology is being developed by UC Berkeley Partners for Advanced Transportation Technology (PATH), Volvo Group, and Cambridge Systematics. By using cooperative adaptive cruise control (CACC), heavy trucks are enabled to drive safely and smoothly at significantly shorter gaps than they can under conventional manual driving today. The technology makes it possible to save energy, reduce emissions, and significantly increase the capacity of a dedicated truck lane facility. In addition, CACC can potentially result in significant benefits for goods movement to and from the major ports, as well as long-haul cross-country routes. CACC is an enhancement to Adaptive Cruise Control (ACC) technology that provides closer and more accurate control of the gap and speed differences between the trucks than conventional ACC, but the coupling is not as tight as it would be in a formally -structured platoon. The CACC system uses forward-looking radar sensors and electronic control of engine and brakes of the conventional ACC system, but adds dedicated short-range communications (DSRC) for vehicle-to-vehicle (V2V) communications, enabling the implementation of a higher performance vehicle-following controller. The close coordination of the CACC system has several advantages:

- Reduced aerodynamic drag, enabling energy savings and greenhouse gas reductions
- Enhanced stability of vehicle following, dampening out traffic disturbances
- Shorter than normal gaps discouraging (but not eliminating) cut-ins by drivers of other vehicles
- Faster responses to hard braking by leading trucks while maintaining safety

The technology for CACC that is being developed builds on 15 years of prior experience on truck platoon research by the PATH Program, combined with the experience that the Volvo Group has developed from their truck platooning development and activities in the European Commission's SARTRE Project and European Truck Platooning Challenge.

On March 8th, Metro Board Chair John Fasana and some of the Metro Senior Leadership Team joined Caltrans Director and Metro Board Member Carrie Bowen, California Transportation Commission Vice-Chair Fran Inman, Gateway Cities Council of Governments President Al Austin II, USDOT, FHWA, California Highway Patrol, and other local government officials for a demonstration of the technology at the Port of Los Angeles. The technology was demonstrated on the I-110, as

trucks drove the freeway safely in closer proximity than usual by using forward looking sensors and vehicle-to-vehicle communication to maintain automated speed and spacing. This simulated “real world” conditions as three big-rig trucks drove 50 feet apart at speeds of 55 miles per hour while hauling cargo containers, similar to those that shuttle between the port and industrial centers throughout Los Angeles County.

3. Customer Relationship Management (CRM) system - early design phase

The Metro Communications and IT departments are currently defining requirements for the initial phase of a comprehensive Customer Relationship Management system. A working group has been established with key members from all sections of Communications to work on business scenarios which reflect their daily work flows and inter-departmental interactions. The information gathered will be used to optimize the CRM system design and streamline the overall business processes required to support Metro’s large and diverse customer base.

A simple example might be an Event Checklist Scenario where tasks and activities might include:

- Securing Chair/Metro Board/CEO time and date
- Securing a location
- Establishing and securing a speaking program
- Coordinating with Community and Government Relations to establish an invitation list
- Sending out invitations
- Tracking RSVP responses

The information gathered will be used to create a programming workflow for optimizing the CRM system design by streamlining the overall business processes through elimination of duplicate tasks, logging and sharing data for future activities, communicating work accomplished, documenting efforts and schedules and creating customer histories required to support Metro’s large and diverse customer base.

Enterprise use of CRM technology will allow Metro to more quickly identify and respond to customer needs and thus more effectively target customer initiatives and programs

4. New Patsaouras Bus Plaza Information Kiosk - under construction

A new Public Information Transit Kiosk is under construction on the north side of Patsaouras Bus Plaza. The Information kiosk is a joint effort by the General Service and Customer Relations departments and will be staffed by trained bi-lingual Metro Contact Center Specialists to assist customers with boarding, alighting and transferring at Union Station. The kiosk will be equipped with all the digital information assets that Metro provides allowing the specialists to work quickly and efficiently. Two windows are featured with special attention given to wheelchair passenger support. Initially, the kiosk will be staffed five days a week during regular business hours but may expand to a 7-day operation should conditions warrant it.

A new TAP ticket vending machine (TVM) is planned for installation adjacent to the kiosk.

The current construction plan calls for completion by the end of May with an opening date to be set in

June 2017.

5. Wilshire Grand Center Information Tri-Tower - under construction

The Wilshire Grand Center, an upscale world-class hotel in the heart of Downtown Los Angeles, is set to open its doors to the public in 2017. The Wilshire Grand Center will not only boast luxury hotel rooms, but also cutting edge restaurants, businesses and attractive nightlife offerings. It will be the tallest structure (73 stories) west of the Mississippi, adding to the rich cultural and economic revival of Downtown.

The project will infuse more than $1 billion into the Los Angeles economy, create critically needed jobs and sustain the city's booming travel and tourism industry into the future.

The Center has been designed to be pedestrian friendly with walking connections to Metro Rail and 10 local transit carriers. A seven foot, 3-sided, information tower located on the plaza near the corner of Figueroa and 7th Street is currently under construction and will display real-time arrival and transit alert information for all local transit along with digital maps of the immediate area. Local tourist attractions available from the Center via public transit will also be featured. Metro Communications Design staff will be designing the display software with special attention to street facing displays which support walk-by and drive-by traffic along with hotel facing displays which consist primarily of walk-up traffic.

6. Connected Buses - Onboard Wifi App - Pilot

Metro IT has developed a new "landing page" app in preparation for the Wi-Fi being made available on specially equipped buses starting in late fiscal year 2017. Unlike most cellular-Wi-Fi solutions implemented by transit carriers which simply provide internet access, Metro IT staff decided to see if the technology could be used in innovative ways to enhance the customer experience as well as bring value to the agency.

To this end, the customer journey cycle was re-examined with a special focus on actual onboard travel time segments of a typical transit trip. Metro currently provides customer support for the initial planning phase of a trip via its website and trip planning application along with signage at stops and stations, and mobile apps for first and last mile support. Most of the actual onboard vehicle support is provided by the operator of the bus who must also focus on navigating through rush hour traffic and maintain a schedule. Additionally, in recent surveys, customers that have left transit to return to their autos indicated safety onboard transit as their primary concern.

The new Metro Wi-Fi app is being designed to address some of these issues whenever a customer connects to the cellular bus router which supports customer Wi-Fi. Like most typical free Wi-Fi hotspots, customers will need to first accept the terms and conditions for use of the connection which limits Metro's liability and advises customers that negative content will be filtered. Upon agreeing to the terms and conditions, customers are immediately directed to the landing page app which supports features which address the aforementioned issues by:

- Displaying their current position on a live map along with the next three stops. The bus position is updated every 5 seconds and requires no opt in by the customer as the app is tracking the bus instead of the customer's smartphone.
- Allowing customers to select their alighting stop from the map to see associated real-time arrival prediction times with an option to set an alarm on their smart device to alert them as their destination approaches.
- Providing a 'Live Chat' button to immediately connect with a Metro Contact Center Specialist for help with any informational or navigation aids needed thus offloading requests to the operator.
- Providing an 'Alert Security' button that directs the onboard camera feed within 5 seconds to security staff viewing an active map of all connected buses thus speeding assistance and allowing customers to feel more empowered regarding their personal safety.

Future features may include the ability to check a remaining TAP card balance with a single button press.

As the project progresses, IT staff will be monitoring for bandwidth use, reliability and customer preferences to ensure a simple and pleasing experience. Bus operator complaints and accident rates on the connected buses will be compared to the current baseline to determine if the desired improvements are obtained. Customer and operator surveys will be conducted to determine if stress levels are reduced.

The Metro Communications Design team is creating "Free Metro WIFI" decals for application to the 150 connected vehicles currently in service. Metro staff is exploring expanding the connected buses program by retrofitting its contracted service fleet (150 buses). All new buses will be cellular-Wi-Fi equipped.

*7. Subway Metro Rail System Cellular project, *Phase 2A - now operational for Sprint, T-Mobile devices*

Additional milestones were reached this period in Metro's effort to provide wireless cellular coverage in our subway system. In addition to Verizon, Sprint and T-Mobile continuing to provide cellular service on Phase One (Union Station to/from 7th.Metro), AT&T signed an agreement to provide service for the Phase One segment of the project.

The second phase between Westlake/MacArthur Park and Wilshire/Western Purple Line Station is also now in service for Sprint and T-Mobile transit customers. Verizon is scheduled to also become available soon. Also part of a second phase, the Vermont/Beverly to Vermont/Sunset section is anticipated to have cell service by this summer. IT will continue to work in coordination with Operations to ensure that project installation activities are completed on time and as efficiently as

possible, with the least impact on customers.

The final installation phase between Hollywood/Western and North Hollywood Stations is anticipated to be complete by the end of 2017.

**Phase 2A stations include: Westlake/MacArthur Park, Wilshire/Vermont, Wilshire/Normandie and Wilshire/Western.*

8) TAP Program to Improve Customer Mobility - in progress

TAP has continued to progress with several customer mobility projects. During the past quarter they implemented a contract with Salesforce developer Vertiba to develop a seamless TAP account payment system for services such as: Bike Share, parking, electric vehicle sharing, fare subsidy programs, ride-hailing services and a mobile application. The TAP mobile application will enhance our customer's fare purchasing and trip planning experience for Metro and all 24 TAP partner transit agencies. A TAP gift card program for major retailers and grocery stores will also be developed to increase TAP card accessibility. Planning for these programs began in February, 2017 with implementation and expected completion over a two-year time span.

NEXT STEPS

Staff will develop and implement customer experience related initiatives as well as continue to evaluate other technology applications that will benefit Metro's customers.

Look-Ahead for Next Period

Staff will report back in July 2017 with a progress update on a variety of customer related technology initiatives, including:

A. Metro Trip Planner Updates

B. Connected Buses - Wi-Fi / Cellular Service 'Pilot'

C. Digital Signage Update

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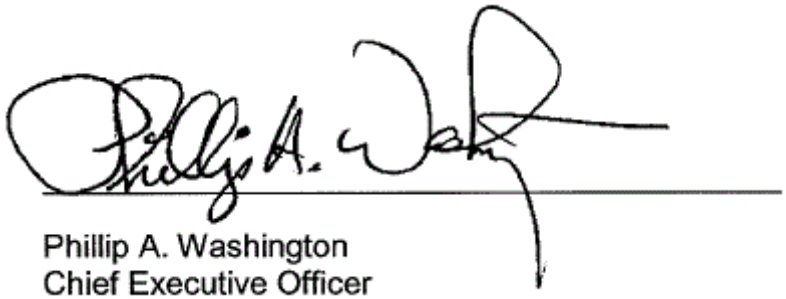

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