



Mobile Payments Enhance Convenience for Transit Riders

Elisa Tavilla

FEDERAL RESERVE BANK OF BOSTON

More transit agencies are offering mobile payment options and other travel tools, including real-time arrival information and service alerts, to improve the overall transit experience.

For many transit riders, fare payment can be a cumbersome process. It often requires waiting in long lines, carrying cash or exact change, and figuring out how much to pay. Commuters want more convenient and efficient ways to pay for transit; in particular, they would like to pay using their smartphones. According to the Pew Research Center, nearly two-thirds of US adults owned a smartphone in 2015.¹ These mobile devices have become an integral part of life, and many commuters use them to access news updates, check email, listen to music, and shop while riding the subway, bus, and commuter rail.

What Commuters Want

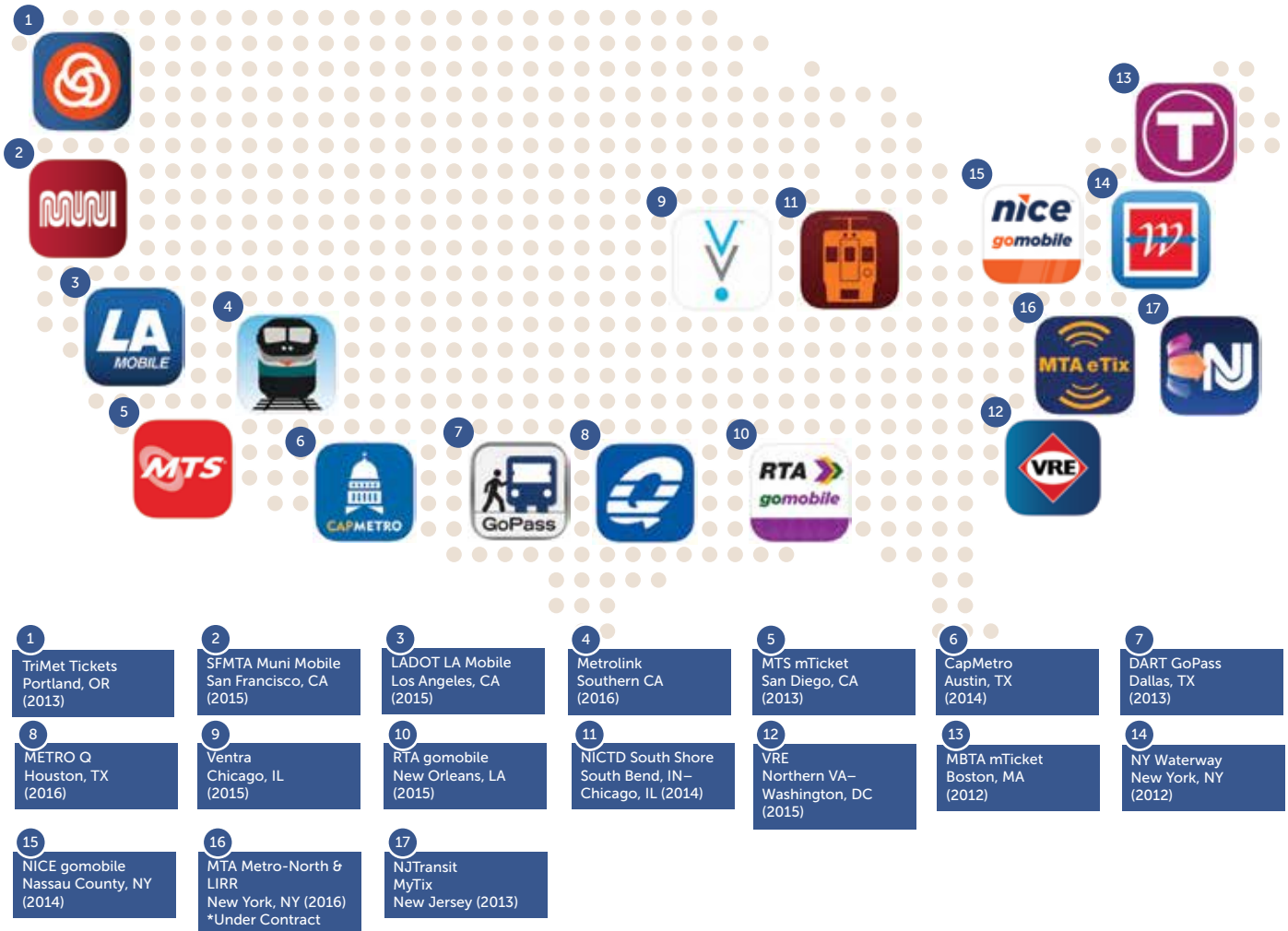
It is not surprising, therefore, that commuters would like to take advantage of their phones to pay for their daily journey. A 2012 MasterCard commuter survey found that nearly half of US commuters would use a mobile phone to pay for mass transit.² The report noted several common pain points among commuters concerning transit fare payments:

- 44 percent worry about missing a bus or train while waiting in line to buy or add money to a fare card.
- 24 percent worry about not having exact change.
- 26 percent worry about not having enough cash to pay for a mass transit ride.³

When the consulting firm Accenture conducted a survey of public-transit users, the results were similar. Four out of five US transit riders indicated that they would be willing to pay more per ride for a completely paperless journey, while over 75 percent said they would pay more if they could use their smartphones for ticketing.

US Transit Agencies with Mobile Ticketing Apps

(by metro region and launch dates)



Source: Payment Strategies, Federal Reserve Bank of Boston, 2016.

In particular, commuters want to avoid waiting in lines: 93 percent of respondents in New York and 87 percent of those in Washington, DC, said they would find it easier to use public transit if queuing were eliminated.⁴

Transit Agencies' Response

Increasingly, transit agencies are adding mobile payment capabilities to increase convenience and payment options for their customers. (See “US Transit Agencies with Mobile Ticketing Apps.”) Commuters can pay for transit fare from virtually any location at any time using their smartphones. A transit rider downloads the mobile ticketing app, creates an account, selects his fare product, pays for it with a credit, debit, or commuter benefits prepaid card (some agencies also accept PayPal and allow split payments), and the ticket is delivered to his phone prior to his trip. It is similar to other mobile commerce transactions. Most apps offer options that are comparable to paper tickets, ranging from single-ride tickets to monthly passes, and some agencies also offer reduced fares to eligible riders with proper identification (e.g., senior citizens, persons with disabilities, and students). For zone-based fares, the app displays originating and destination stations to help customers select the correct fares.

Mobile ticketing is commonly used in open-entry transit systems that employ visual fare inspection because digital tickets are easily displayed on phone screens. Riders must activate their mobile tickets before they are valid for travel. Most agencies perform visual inspection of the ticketing screen for dynamic features that change depending on the route and time of day, such as changing background colors, a visible time stamp, and animation. These features make inspection easy for train conductors and bus operators. Alternatively, transit agencies can validate an onscreen ticket electronically using a scanning device.

Early Adopters

Transit agencies in Boston, Dallas, and Portland, Oregon, were among the first to offer mobile ticketing apps. In 2012, the Massachusetts Bay Transit Authority (MBTA) launched its MBTA mTicket app for commuter rail and ferry. Dallas Area Rapid Transit (DART) introduced the GoPass app, and the Tri-County Metropolitan Transportation District of Oregon (TriMet) deployed TriMet Tickets in the following year. In all three cities, the apps have been well received and adoption continues to grow. Mobile represents a growing percentage of ticket sales and revenue for each agency, while sales through other fare channels, including ticket vending machines, fare boxes, retail outlets, and on-board cash payments,

are declining. The MBTA currently sells 60 percent of its single-ride commuter rail tickets via mTicket. Mobile accounted for 18.9 percent of MBTA commuter rail sales, and about 6 percent of the agency’s total fare revenue in fiscal year (FY) 2015.⁵ DART’s mobile ticket sales represented 13.9 percent of total sales in FY 2015, up from 9.6 percent in FY 2014.⁶ Similarly, mobile ticketing made up about 11 percent of TriMet’s fare revenue in FY 2015, an increase from 8 percent in the previous year.⁷

Integrated Apps: Chicago Transit Authority’s Ventra

Commuters who travel on multiple modes of transit with different operators and separate fare systems often must carry several fare cards. An integrated app that enables fare payments and trip planning across regional transportation systems and modes makes things much easier. In November 2015, the Chicago Transit Authority (CTA) launched just such an app, Ventra, which supports fare payment and travel information for the city’s three transit operators. It is one of the first truly regional transit apps in the United States.⁸ CTA and Pace (Chicago suburban) bus riders can manage their Ventra accounts (e.g., check balance, manage funding source, view transaction history) and add funds and passes via the app. Customers of Metra Rail (the Northeast Illinois Regional Commuter Railroad Corporation) can purchase mobile tickets through the app using their Ventra account or other payment method. The app also offers schedules, real-time arrival information, and nearby route locations for all transit modes. CTA plans to add trip-planning capabilities and a virtual Ventra card to a future version of the app.

Trip-Planning Features

Mobile technology also allows transit riders to better plan their travel. Most transit apps include trip-planning features, such as maps, schedules, real-time arrival information, and service alerts. These tools help commuters minimize wait times and missed connections. They also make it easier for occasional riders to navigate unfamiliar transit routes and fare systems. Some agencies are incorporating complementary transportation services, such as parking and rideshare, to help riders get to and from their final destinations in areas not covered by public transit.

Bundling

In several cities, transit agencies are partnering with public attractions to encourage use of mobile payments and mass transit. Bundling improves the efficiency of ticketing and encourages consumers to take public transportation to local events. While many consumers prefer to take mass transit to public events, occasional transit riders who are less familiar with the fare system can cause bottlenecks at ticket machines. Bundling can help to address this problem and prevent frustrating customer experiences. For example, Boston’s MBTA customers can purchase commuter rail tickets to Gillette Stadium for all New England Patriots home games and other public events via the mobile ticketing app. In Dallas, DART’s GoPass app bundles transit fare with discounted general admission to the Dallas Zoo and State Fair of Texas.

The Psychology of Mobile Tickets

It is important to note that transit agencies are offering mobile payment as a supplementary option. Therefore, customers who do not have smartphones or prefer to use traditional payment methods can still do so.⁹ It is also interesting to note that the precision afforded by real-time activation of mobile tickets can potentially influence customers’ financial decisions and fare product choices. With GoPass, DART observes that most tickets are purchased and used within 24 hours, and more riders buy tickets valid for two hours as opposed to day passes, perhaps because riders can activate their digital tickets precisely when they need to travel. Given that transit fare payments are a recurring expense for commuters, it is likely that the convenience and value experienced by those who try mobile ticketing will encourage greater use of mobile payments in other retail venues too.

* * *

As mobile payments continue to evolve, transit operators will be able to integrate a degree of mass customization that takes personalized travel preferences into account or makes location-based offers. They may also choose to institute loyalty programs to further enhance commuters’ experience using and paying for public transportation. We can expect much more innovation—and many more apps—in the future.

Elisa Tavilla is a payment strategies industry specialist at the Federal Reserve Bank of Boston. Contact her at Elisa.Tavilla@bos.frb.org.

Endnotes

- ¹ Aaron Smith, “U.S. Smartphone Use In 2015,” (report, Pew Research Center, Washington, DC, April 2015), <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/>.
- ² MasterCard Worldwide, “Half of US Commuters Would Use Their Mobile Phone for Transit Payment” (slideshare presentation, March 2012).
- ³ Ibid.
- ⁴ “Public Transportation Users Predict Big Increases in the Use of Smartphones, Paperless Travel and Social Media, New Accenture Survey Reveals” (news release, Accenture, May 21, 2013), <https://newsroom.accenture.com/news/public-transportation-users-predict-big-increases-in-the-use-of-smartphones-paperless-travel-and-social-media-new-accenture-survey-reveals.htm>; Keith Barry, “Commuters Would Pay More for Better Public Transit Tech, Study Says,” *Wired*, May 2013, <http://www.wired.com/2013/05/public-transit-tech/>.
- ⁵ Interviews, MBTA, November 2015.
- ⁶ Interviews, DART, November 2015.
- ⁷ Roberta Alstadt, “TriMet Mobile Tickets Top 5 Million in Less Than Two Years,” *TriMet News*, August 25, 2015, <http://news.trimet.org/2015/08/trimet-mobile-tickets-top-5-million-in-less-than-two-year/>.
- ⁸ For more information about the Ventra app, see <https://www.ventrachicago.com/>.
- ⁹ Several US transit agencies are in the process of installing account-based, open-payment fare systems that can accept near-field communications (NFC) mobile payments, such as Apple Pay. While Chicago’s Ventra and Salt Lake City’s UTA fare systems currently accept NFC mobile payments, actual usage remains low. Other cities planning to implement this type of fare system include Washington, DC, Philadelphia, Portland (Oregon), Dallas, New York, and Boston. Greater availability of open-payment fare systems will create more opportunities for commuters to pay for fares using their smartphones. For more information on transit mobile payments, see Elisa Tavilla, “Transit Mobile Payments: Driving Consumer Experience and Adoption” (report, Federal Reserve Bank of Boston, February 2015), <http://www.bostonfed.org/bankinfo/payment-strategies/publications/2015/transit-mobile-payments.pdf>.