



DON'T *do business* WITHOUT IT

# Improving rider experience and reducing transit costs

**CONTACTLESS OPEN-LOOP  
PAYMENT SOLUTIONS  
IN TRANSIT**



# Open payments in transit keep riders on the move

As commuters return to work, school, and the everyday activities of city living, ridership is seeing a comeback with higher demand for public transportation. People are traveling more, and they are bringing their payment preferences with them.

According to a Dynata report, **nearly 60% of global consumers prefer contactless methods over magnetic-strip cards, cash, or PIN and chip-enabled cards**<sup>1</sup>.

In a separate American Express survey, 76% say contactless card payments are faster and more convenient than using cash or chip/swipe cards<sup>2</sup>.

To meet this rising demand, transit authorities are exploring open-loop payments, which enable riders to use EMV® contactless solutions such as credit/debit cards, mobile wallets, or wearables to pay for rides. These contactless payment options allow riders to simply “tap and go” at the fare gate without fumbling for cash, tickets, tokens, or closed-loop transit system payment cards.

**90% of riders surveyed now expect contactless fare options for their travels.**<sup>4</sup>



They also support pay-as-you-go fare capping, which makes discounted passes more accessible to all riders, without an upfront purchase. At the same time, they permit transit systems to move more people, more quickly, and more efficiently, without interrupting progress on the rider journey.

Transit authorities all around the world are adopting contactless open-loop payments, and more are coming online. According to Global technology intelligence firm ABI Research, **the volume of EMV® cards being used in transit open-loop ticketing is anticipated to increase from 24.8 million to 136.9 million globally by 2025**<sup>3</sup>, a clear indicator that consumer behavior is evolving in the direction of contactless.

In light of these trends, this paper will focus on the benefits of contactless open-loop payment solutions in transit, and considerations for implementing them to address rider preferences, increase efficiency, reduce rider and operational costs, and stay ahead of the technological curve.

<sup>1</sup> [A Breakthrough for Contactless Payments](#), Dynata, 2020.

<sup>2</sup> [Marketing Contactless Payments for Transit Teams](#), American Express, May 2022.

<sup>3</sup> [Open-Loop EMV Contactless Payment Cards for Transit to Rise to over 136 Million by 2025](#), ABI Research, May 2021.

<sup>4</sup> [Transit Payments Report](#), PYMNTS.com, January 31, 2022.

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## The case for contactless open payments in transit

Public transit is about movement and speed. To keep up, the ticketing process needs to be safe and effortless for riders, and cost-efficient for transit authorities. Contactless payment systems that use EMV<sup>®</sup> contactless and Near Field Communication (NFC) protocols meet the unique needs of transit riders, merchants, and operators while providing greater flexibility and risk protection in an open payment environment. This system can also enable fare capping, which can make travel easier, faster, and more equitable and affordable for a wider range of riders by offering discounted passes on a pay-as-you-go basis, instead of requiring a large upfront payment.



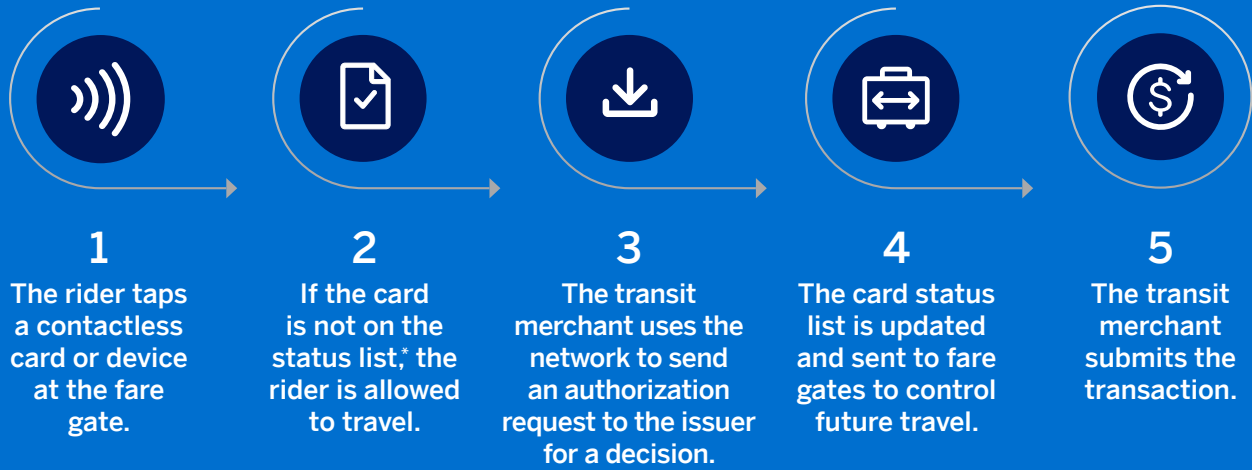
**86%** of respondents expect to spend more or the same on travel in 2022 compared to a typical year before the pandemic.<sup>5</sup>

**76%** of respondents plan to travel more with family in 2022 than they did in 2021.<sup>5</sup>

<sup>5</sup> [2022 Global Travel Trends Report](#), American Express Travel, February 2022.

# Open-Loop Transit Flow Example

This is a high-level flow illustrating a standard open-loop transit transaction. Transaction speeds should meet EMVCo industry standards.



\*A status list, also known as a hot list or service list, is a file created and maintained by a transit authority/integrator for the purposes of financial risk management for the merchant.

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# The benefits of implementing an open-loop payment system

Features and benefits vary depending on how you implement your system.

## **FAST, EASY PAYMENT**

Riders can move more quickly through transit stations using their contactless card or mobile device to tap and go.

## **COMFORTABLE AND CONVENIENT**

Provides a consistent experience for riders who are increasingly expecting contactless as their preferred way to pay.

## **SAFE TRANSACTIONS**

EMV® protocols, the global standard in security and interoperability for contactless transactions, combine with multiple layers of security implemented throughout the credit payment system. This means riders and transit authorities can be confident American Express transit payments are safe and secure.

## **STRAIGHTFORWARD TICKETING SYSTEM**

There is no need for riders to choose the type of ticket to purchase—peak or off peak, daily or weekly pass, etc. They simply tap and go with their contactless card or mobile device, and pay the best rate in each instance.



## **REDUCED LINES AT TRANSIT STATIONS**

Eliminate the need for pre-purchased tickets and queues at ticket vending machines.

## **ALLOWS FARE CAPPING**

Riders no longer need to purchase discounted daily, weekly or monthly passes upfront. Pay-as-you-go systems track rider usage to automatically charge the best rate based on the number of trips in a given time period. With fare capping, riders don't have to pay more than the daily, weekly, or monthly pass rate, and don't pay in advance for trips they don't use.

## **LOWER OPERATIONAL COSTS**

Open-loop payment systems can reduce or eventually eliminate the costs of printing, issuing, handling, and storing proprietary transit cards and paper tickets; installing and maintaining ticket vending machines; handling cash; and back-office accounting and reconciliation.

# Additional advantages of getting onboard with contactless transit open-loop payments

## THE BACK-OFFICE BENEFITS OF AGGREGATION AND DELAYED AUTHORIZATION

Adopting a full, advanced contactless open-loop system allows for delayed authorization and transaction aggregation, which can save time and expense in the back office, while maintaining speed of entry at the turnstiles.

By supporting delayed authorization at contactless-only Transit Access Terminals (TATs), riders who are not on a card status list gain instant approval, even though the fare value is not known at the time of entry—for instance when a rider is making multiple trips under a fare cap.

**Throughout the day, as the rider's trips accumulate, the account status check performed on entry provides risk protection without the need of an authorization request submission for every trip.** At day's end, their ticket purchases are aggregated by the back office into one charge requiring a single authorization. Through delayed authorization and aggregation, merchants employing an advanced model eliminate the cost of processing a high volume of single-trip "micro fares" and benefit from selected chargeback protection.



## A TREASURE TROVE OF RIDER DATA

The migration to digital ticketing often provides transportation authorities with informative traveler data, which transit professionals can use to boost the customer experience through better route scheduling and capacity planning protocols. **Working with American Express, transit authorities can access data analytics from literally billions of transactions,** combining customer and merchant information into invaluable insights and buying behaviors to create rider programs that can help drive more traffic.



**With delayed authorization and aggregation, merchants gain some protection against chargebacks and eliminate the cost of processing a high volume of single-trip "micro fares."**



## A GOOD TIME TO INVEST

Many governments worldwide are now investing in public transit. In the U.S., for instance, transit systems can take advantage of unprecedented funding set aside for rebuilding and improving the country's public transportation options through the passage of the Infrastructure Investment and Jobs Act. The new law authorizes billions to fund public transit projects. In total, it is slated to provide \$89.9 billion in guaranteed funding for public transit over a five-year period, including \$39 billion in new investment to modernize transit, the largest Federal investment in public transit in history.<sup>6</sup>



In the U.S., the Infrastructure Investment and Jobs Act provides **\$39 billion** in new funding to modernize public transit.<sup>6</sup>

## EQUITY IN PAYMENTS: FARE FAIRNESS

The conversation around equity in transportation often includes improving access to mass transit by increasing affordability, which is where contactless open-loop payments can be a game-changer. They enable fare capping, a system that limits rider spending to a specific dollar amount to prevent overpaying for commuter services. Instead of purchasing a discounted weekly or monthly pass, open-loop contactless payments enable riders to pay as they go. The system automatically keeps track of the number of rides, and charges accordingly.

**Fare capping lowers the burden placed on low-income commuters who cannot afford upfront costs for monthly passes,** allowing them to benefit from the same discounts for unlimited rides without having to pay in advance. Riders who can only afford to pay as they go have access to the cheapest deals, which makes open-loop systems a fairer way to structure payments.

<sup>6</sup> [President Biden's Bipartisan Infrastructure Law](#), The White House press release, accessed June 2022.



## Open-loop payment solution models

When choosing an open-loop payment solution from American Express, transit authorities have two models to consider: simple and advanced. **The right model for any particular transit system depends on a variety of factors, including cost, use, transportation modes, and program objectives.** This section briefly describes these transit open-loop payment systems, and discusses implementation considerations for each.

### SIMPLE MODEL

A basic open-loop payment system set up to enable contactless transactions is **ideal for single-mode transit systems that convey riders on one-way trips at fixed fares.** Since this model accepts and processes open-loop payments without aggregation, it has less technical and policy requirements.

- Moves riders quickly through transit stations using their contactless card or mobile device to tap and go
- Eliminates need for pre-purchased tickets, or managing smart card balances
- Reduces queues at ticket vending machines
- Can reduce the need to have ticket vending machines and closed-loop smart card systems

### ADVANCED MODEL

A more sophisticated open-loop payment system that provides all the features and benefits of the first model, with additional **advantages and functionality across multiple transit modes and multi-leg/multi-day travel.** The advanced model enables aggregation of charges throughout the rider journey by bus, train, subway, or any modal combination, and allows fare capping.

- Reduces high volume of micro payments
- Supports reduction of back-office processing costs
- May reduce rider costs and supports fare equity
- Supports best fare price promise which calculates the lowest fare the rider is eligible for
- Mitigates risk for transit authorities with declined authorization and chargeback protection



# Implementation considerations

Whether you choose a simple or advanced open-loop payment solution, here are a few considerations to keep in mind that will be helpful as you make your decision.

## **COSTS**

Determine budgetary parameters when planning the required functionalities of your transit open-loop payment solution. The more advanced and extensive your solution must be, the greater the investment.

## **SINGLE OR MULTI-MODAL**

If your system involves more than one transportation mode, your open-loop payment solution will likely be more sophisticated.

## **LEVEL OF EXPERTISE**

To familiarize yourself with available resources and implications of implementation, you may wish to work with a consultant that has extensive contactless payment expertise.

See [page 10](#) for a breakdown of implementation partners in an open-loop payment model.

## **AGGREGATION AND FARE CAPPING**

You will want to consider implementing a model that enables these functionalities if you are concerned about reducing rider and operator costs while increasing efficiency, convenience, and payment security. Accommodating aggregation and fare capping will require additional development with a transit integrator.



## **PILOT PHASING**

Transit agencies sometimes implement open-loop payment solutions in stages, beginning with a simple model as a test pilot before migrating to an advanced model system-wide.

## **RISK MITIGATION**

To manage rider throughput versus risk of declined authorization, transit authorities should consider open-loop payment solutions that feature delayed authorization, which allows riders to move through the transit system without waiting for approval. These solutions offer declined authorization and chargeback protection up to certain values, so if the charge is later declined, the issuer assumes liability for payment.

## **EMPLOYEE TRAINING AND RIDER EDUCATION**

Successful implementation of open payments in transit requires clear, concise communication with transit employees and customers before, during and after launch. This communication includes employee orientation with new technology protocols and policies; consumer-facing signage in stations, on vehicles, and at fare vending machines and ticket offices; and paid advertising in print and digital, direct mail and email, public websites, and social media posts.



## Working with implementation partners

For successful launch and ongoing administration of your solution, you may need to work with a variety of participants in the transit open-loop payment environment.

### **TRANSIT INTEGRATOR**

These providers manage transactions and enable aggregation and fare capping by recognizing riders' unique payment methods, accounting for applicable discounts and distance traveled, and charging the best fare for each trip. Transit integrators may sometimes also provide other services to support open-loop payments, for example, they may be terminal providers or payment processors.

### **PAYMENT PROCESSOR**

Back-end service providers that transmit fares from riders' bank cards and smart devices to transit providers' bank accounts.

### **TERMINAL PROVIDER**

Design, install, and maintain Transit Access Terminals, equipped with the technology to read and validate riders' contactless bank cards and smart devices, either onboard vehicles or at station platforms.

### **ACQUIRER**

Provides merchant services when moving to open-loop, maintaining relationships with card networks, holding merchant accounts, accepting deposits from merchant sales, and assuming financial responsibility for that activity. American Express is an acquirer and works with other partners to provide acquiring services to transit authorities.



## Transit open-loop payments keep mass transit moving, and your ridership growing.

As a transit authority, you grow by helping move more people more efficiently. The more you do so, the stronger your customer relationships become and the greater your ridership grows. That's where transit experts like American Express can help—providing effortless transit payments backed by global experience as an issuer, acquirer, and network. **You can implement solutions that meet the latest industry security standards, like EMV®, reduce the cost of handling cash and maintaining proprietary**

**fare systems, and leverage American Express's expertise to ensure a seamless transition to contactless payment systems.** At the same time, American Express can support integrators and merchants with data and insights from the billions of transactions that flow through our global payments network. American Express and transit partners can work together to utilize these insights and develop strategies to engage and reach the riders transit authorities seek to serve.



To learn more about successful transit open-loop payment implementation strategies that improve the customer experience, reduce costs, and increase operational efficiency, visit our [Transit](#) web page, or contact us at [transit@aexp.com](mailto:transit@aexp.com).



## Resources

<sup>1</sup> A Breakthrough for Contactless Payments, Dynata, 2020. [dynata.com/content/Dynata-Global-Consumer-Trends-COVID-19-The-New-Normal-Breakthrough-for-Contactless-Payments.pdf](https://dynata.com/content/Dynata-Global-Consumer-Trends-COVID-19-The-New-Normal-Breakthrough-for-Contactless-Payments.pdf)

<sup>2</sup> Marketing Contactless Payments for Transit Teams, American Express, May 2022. Data points reflect findings from an American Express online survey, conducted February 5-7, 2021, among a sample of 1,004 adults 18 years of age and older. [network.americanexpress.com/globalnetwork/dam/jcr:9fa2e80f-b093-42f7-a44a-2ed58ff36ad2/American%20Express%20Transit%20Playbook.pdf](https://network.americanexpress.com/globalnetwork/dam/jcr:9fa2e80f-b093-42f7-a44a-2ed58ff36ad2/American%20Express%20Transit%20Playbook.pdf)

<sup>3</sup> Open-Loop EMV Contactless Payment Cards for Transit to Rise to over 136 Million by 2025, ABI Research, May 2021. [abiresearch.com/press/open-loop-emv-contactless-payment-cards-transit-rise-over-136-million-2025](https://abiresearch.com/press/open-loop-emv-contactless-payment-cards-transit-rise-over-136-million-2025)

<sup>4</sup> Transit Payments Report, PYMNTS.com, January 31, 2022. [securecdn.pymnts.com/wp-content/uploads/2022/01/PYMNTS-Transit-Payments-Report-January-2022.pdf](https://securecdn.pymnts.com/wp-content/uploads/2022/01/PYMNTS-Transit-Payments-Report-January-2022.pdf)

<sup>5</sup> 2022 Global Travel Trends Report, American Express Travel, February 2022. [americanexpress.com/en-us/travel/discover/get-inspired/global-travel-trends](https://americanexpress.com/en-us/travel/discover/get-inspired/global-travel-trends)

<sup>6</sup> President Biden's Bipartisan Infrastructure Law, The White House press release, accessed June 2022. [whitehouse.gov/bipartisan-infrastructure-law/#publictransit](https://whitehouse.gov/bipartisan-infrastructure-law/#publictransit)