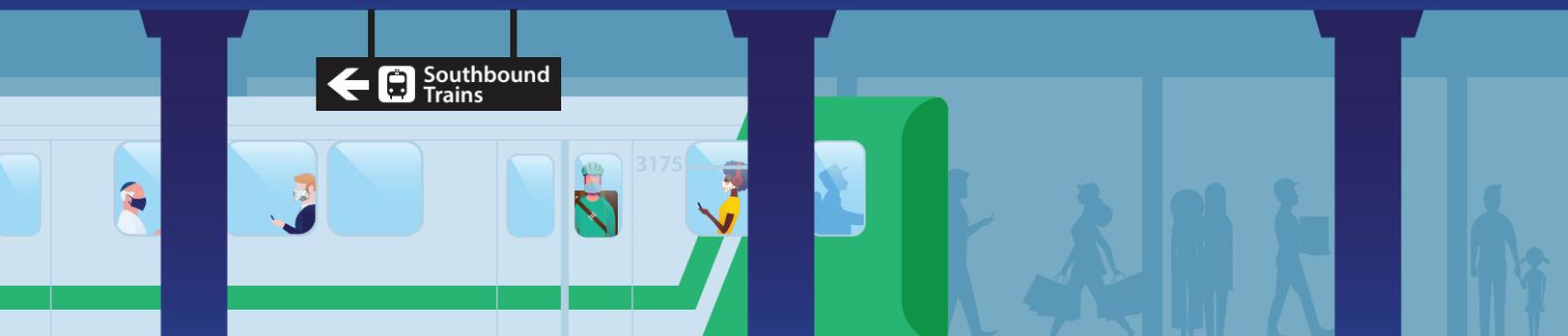


Urban Transportation. The Connection to a Brighter Tomorrow.

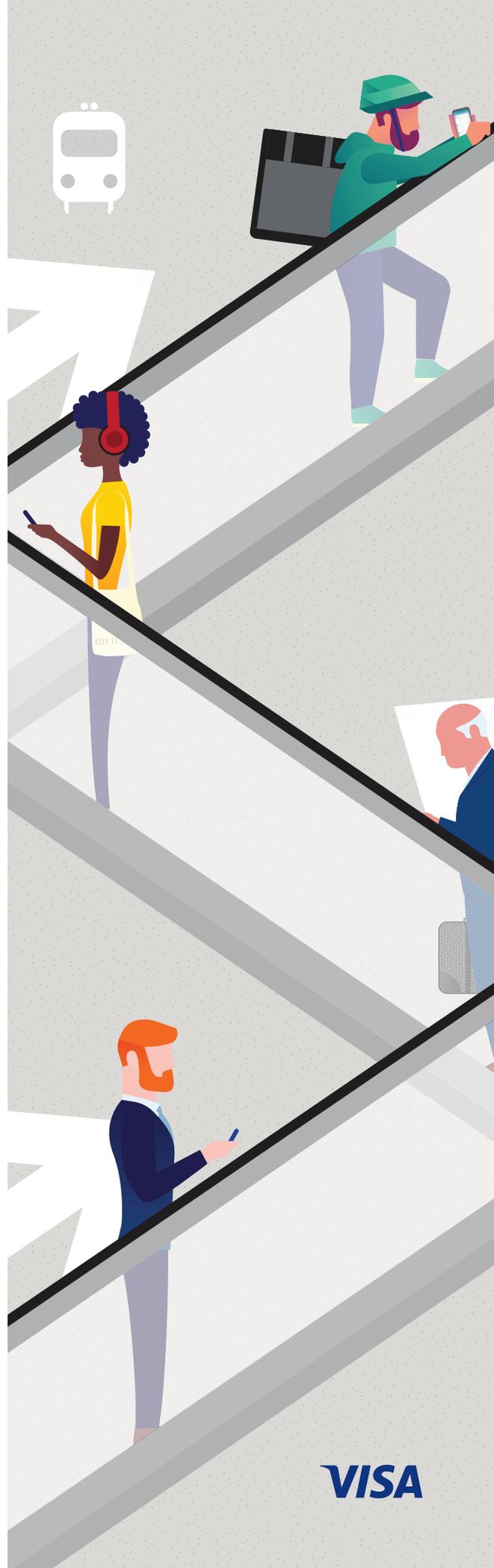


COVID-19 has had a massive impact on cities and public transportation companies across the globe as they work to deliver safe, reliable, and affordable modes of transport.

With heightened consumer anxiety over commuting—and the challenges in practicing safe social distancing and limiting interaction on journeys—forward-thinking transportation providers will be more important than ever in getting cities safely back to work, driving economic growth, and planning for the future of urban mobility.

Visa has the experience and expertise to help cities and transportation agencies accelerate their intelligent travel solutions. Visa's global payment management platform, Cybersource, offers flexible, scalable, secure, and transit-ready solutions. As we support the immediate recovery of urban mobility around the globe, Visa is committed to improving fare collection systems that benefit the long-term health of cities through reliable, safe, and convenient payment options.

To learn more about Visa's Global Urban Mobility solutions, visit [visa.com/urbanmobility](https://www.visa.com/urbanmobility)



The public transport lifeline

If we think of cities as living entities, public transportation is the circulation system—efficiently moving people and goods to areas of maximum utility.

Public transportation brings myriad economic benefits:

- Connecting people to their jobs, studies, and leisure activities
- Allowing for clustering of activities and business development
- Supporting tourism
- Reducing traffic congestion and air pollution
- Stabilizing property values
- Helping less developed areas have better access to outside opportunities¹
- Providing access to employment, education, healthcare, and other essential services for lower income populations that have more limited transportation options²

Public transport itself is also a major economic engine. Worldwide, over 13 million local jobs are linked to public transport services. For every direct job in public transport, 2.5 additional jobs exist in the supply chain and the local economy.³

Overall, the economic benefits of public transportation are five times higher than the money invested in it.⁴

Given the crucial role that public transport plays in the economy of urban centers, it's not surprising that usage skyrocketed as urban populations have grown.

On a global basis, mass transportation carried 53 billion passengers in 2017—an increase of 9 billion passengers over a five-year period.

- Asia represented 25 billion of the annual total
- Europe carried 10 billion passengers
- Latin America carried 6 billion passengers
- North America represented 3.7 billion passengers⁵



Within the mix of public transportation options, bus is by far the dominant mode of transportation with a 63% share, followed by metro (16%), tram/LTR (16%), and suburban rail (5%).⁶



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In the United States, five percent of all commuters typically use public transportation, but in major cities, that number jumps to 10%.⁷ For example, eight million people in the New York metropolitan region—including over 50% of the city's population—use a complex network of subways, buses, and railways each weekday.⁸ Safe and efficient functioning of these complex networks for passengers is critical to the well-being of NY and other cities around the world that rely on them.

A shock to the system: The impacts of COVID-19

The effects of COVID-19 on transit ridership and revenue worldwide are unprecedented. While air travel and transport ridership eventually recovered from catastrophic events such as the attacks of 9/11 and the SARS epidemic of 2003, recent surveys show that the road to a post-COVID normal remains more fraught as governments and transit agencies plan for longer-term recovery while trying to model the trajectory of work-from-home preferences and policies over the coming months and possibly years.

Public concerns of utilizing mass transport—and the potential increase in single occupancy vehicle ridership—pose serious threats to urban infrastructure, sustainability, and economy.

- A study in Australia in April 2020 found that over 80% of respondents were concerned about hygiene on public transportation⁹
- 48% of Americans say that riding public transit poses a high health risk due to the coronavirus¹⁰
- The IBM Institute for Business Value surveyed more than 25,000 U.S. adults. More than 20% of those who regularly took public transit said they no longer would, and another 28% said they will likely use public transportation less often¹¹
- More than 17% of respondents of the same study said they would use their personal vehicle more as a result of COVID-19, with approximately 1 in 4 saying they will use it as their exclusive mode of transportation going forward¹²

But even in the face of this uncertainty, there are glimmers of hope as countries and public transportation systems begin to reopen. In New York City, day one of Phase 1 saw an increase of 213,000 subway and bus passengers, representing a 17% increase from the week prior on subways alone.¹³ In Singapore, Visa transactions in the Land Transport Authority (LTA) network are showing a strong rebound and are now at 60% of peak traffic levels in March 2020.

Additionally, there are early indications that as cities and transport networks get back up and running, they can do so safely, and without becoming a source of transmission. Experts believe that much of this is the result of improved adherence to public health measures, such as social distancing and wearing masks. Many cities around the world that have seen significant return to public transport have yet to experience outbreaks that can be traced to public transportation – including in Hong Kong, Beijing, Tokyo, Paris, and Berlin.¹⁴ This is a very positive sign of recovery.



European Transit Systems with Contactless Enabled by Visa



Finding opportunity in adversity

While certainly not welcome, the unprecedented declines in public transport usage are providing an opportunity for transportation agencies to make long-planned repairs and upgrades.¹⁵

To help pay for these projects, agencies are tapping both emergency access and recovery funds. U.S. transit agencies received \$25 billion through the Coronavirus Recovery Bill passed by the U.S. Congress in early March 2020.¹⁶ And the Welsh government has announced it will spend up to £65 million over the next six months to ensure train services continue to operate on the Wales and Borders network for key workers and others that rely on the train to travel.¹⁷ Similarly, the government in England is spending approximately £1 billion per month to keep the railways running while ridership and revenues experience COVID-19 related declines.

These investments represent the indispensable nature of public transport, as well as the beginnings of what leading transportation experts see as a re-imagining of the entire public transportation experience—systems that are more flexible, equitable, and resilient. This move is already underway as many transportation agencies have revamped their payment and ticketing methods to create more expedited ticketing experiences.

Many agencies now view touch-free payment experiences—enabled by contactless payment technology—as a must-have for post-pandemic recovery.

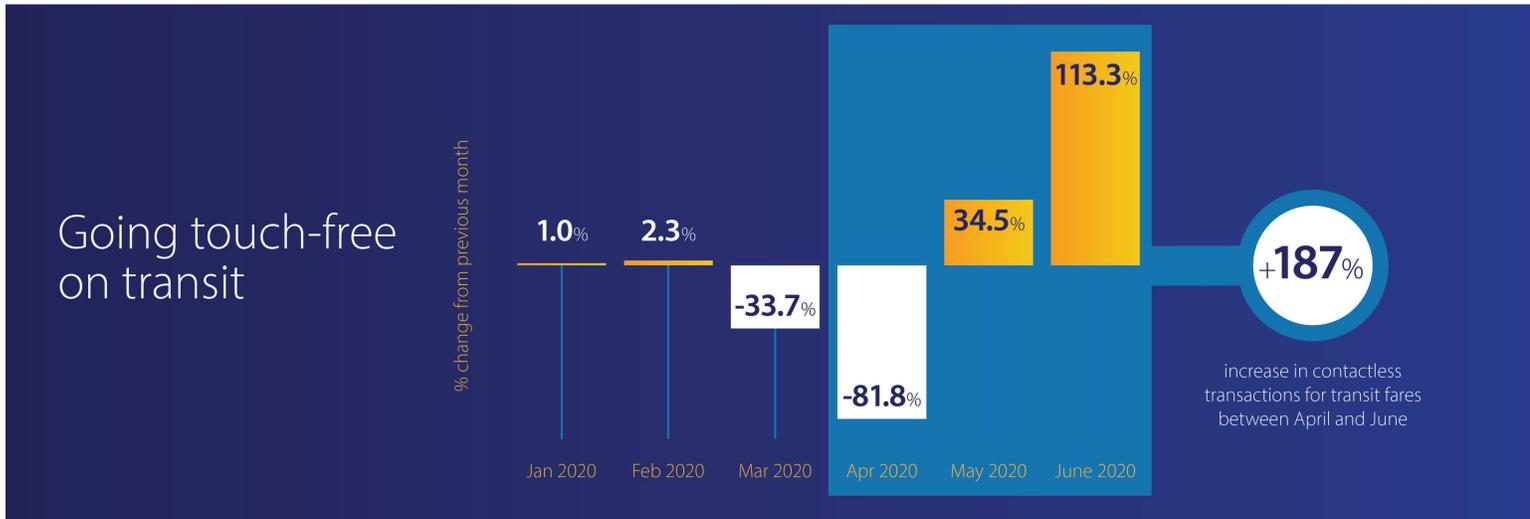
- Monterey-Salinas Transit (MST) in Central California announced a partnership with Caltrans and Visa to implement open loop contactless fare payment in public transit buses¹⁸
- After a successful pilot program, Calgary Transit has announced a network-wide deployment of a contactless mobile ticketing app for safer and faster boarding. More than 1,000 validation devices have been installed across the bus network covering 155 routes¹⁹
- In July 2020, the Delhi government announced the rollout of a contactless e-ticketing system in the coming months to 6,487 buses in the Delhi Transport Corporation (DTC) network. State transport minister, Kailash Gahlot, stated, “Our aim is to use technology to ensure minimum or zero contact between people inside buses.”²⁰

Around the world, Visa is involved in over 500 projects that look to enable or expand contactless payments in their transportation systems and is currently helping a number of cities to accelerate their contactless capabilities—so that customers can enjoy an expedited payment experience when entering buses, trains, and subways.²¹

Getting more from contactless

Deploying contactless payment technology where riders simply tap to pay—rapidly, and at scale—in transportation systems is critical in a world where no-contact experiences are here to stay.

As of March 2020, contactless, tap to pay transactions grew over 40% year-over-year across the Visa network.²² This acceleration of digital interactions is part of our new normal, and it has dramatically changed not only how we buy, but also how we live, work, and get around.



In fact, for cities around the world, contactless transit has gone from a nice to have to a must have in order to provide residents with safe and secure solutions through COVID-19 and beyond. There is a greater sense of urgency among public and private transport organizations and governments to adopt these solutions to limit interaction with surfaces, sales counters, bus drivers, ticket and top-up machines, and cash handling, while rebuilding consumer confidence with a contactless experience.

Contactless plays a key role in building public trust regarding passenger health and safety, and critically, the safety of public transport workers who have put their own well-being at risk to keep transport networks operating. There are no kiosks, ticketing, or top-up machines to touch and potentially spread infections. Furthermore, the elimination of cash greatly reduces social contact and time spent in lines. Several major transportation systems—including those in London—have already begun to restrict the use of cash.

Visa is seeing acceleration among our more than 500 active urban mobility projects worldwide, despite COVID-19 related restrictions and various stages of re-opening. Cities have continued to launch contactless payment solutions on systems, providing immediate solutions to support essential workers and recovery. Examples include projects in Brussels, Bucharest, Hong Kong, Santo Domingo, and Monterey. While timelines vary based on the infrastructure and scope of each city and transport system, we are seeing cases where projects that may have taken several years to implement, accelerate to completion in just 6 months.

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The progression toward contactless, tap to pay in transit mirrors the rapid rise of contactless payments in other sectors of society.

- Global contactless penetration is estimated at one third of all transactions
- Visa estimates there will be approximately 300 million contactless cards issued in the U.S. by the end of 2020
- Over 70% of face-to-face payments in Europe are now contactless—and in Central Europe, Middle East and Africa this number is above 80%²³
- In many of Europe's largest countries, the share of Visa transactions that are contactless has increased by at least 25% year-on-year²⁴
- The global contactless payment market is expected to grow from \$10.3 billion in 2020 to \$18 billion in 2025²⁵

Contactless payment is experiencing a surge in retail as a result of consumers wanting safer, expedited experiences. It's estimated that contactless payments have increased 20% since the beginning of the pandemic.²⁶ The demand for a lack of contact is serving to accelerate a trend that is already well underway.

Letting customers pay for transportation the way they pay elsewhere can reduce barriers to using transportation services. In fact, studies show that passengers far prefer contactless over other payment methods.

- 49% of UK commuters say open loop contactless payments have been the single most significant improvement to their overall urban mobility experience²⁷
- 60% of customers who don't tap would consider replacing their transportation cards with contactless, tap to pay technology²⁸

Fare flexibility for new workplace norms

In a time of tremendous change in workplace and commuting trends, contactless payments provide a means for public transport agencies to keep pace. As businesses adapt to new health and safety demands, they have pushed many employees from the office to the home. A recent survey, found that the share of remote workers in the U.S. had quadrupled to 50% of the nation's workforce.²⁹

While many of these workers will eventually return to the office, an increase in remote working is likely to persist—particularly as large employers such as Twitter, Fujitsu, and Facebook, allow employees to work remotely on a permanent basis.³⁰

In the context of this new normal, open loop, pay-as-you-go (PAYG) contactless payments provide commuters with the flexibility to pay for transport when and as they need it. For the growing set of less consistent commuters, monthly or annual passes may no longer have the appeal they had pre-pandemic. Those that continue to commute consistently may be less likely to commit to annual passes out of concern of future uncertainty and the potential for another shutdown.

300M
CONTACTLESS
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33%
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TRANSACTIONS ARE
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\$18B
IN CONTACTLESS
PAYMENTS
BY 2025

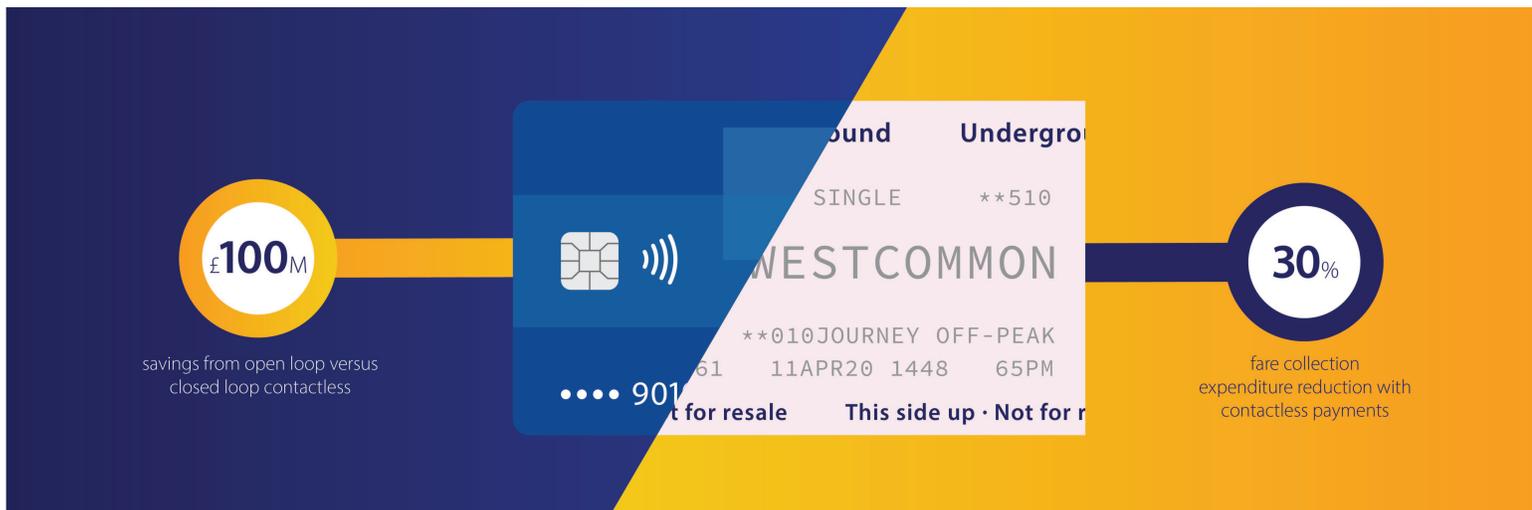


VISA

Digital solutions increase operational savings

Paper tickets or tokens are cumbersome for riders, inefficient to manage, and more expensive than digital options. In shifting away from traditional forms of ticketing and legacy (or proprietary) systems, EMV® Contactless, pay-as-you-go payments can provide savings and help operators focus on higher priorities such as rider safety and satisfaction.

- A survey found that transport agencies spend an average of 14.5 cents on ticket costs for every physical dollar collected, compared to 4.2 cents for every digital dollar³¹
- According to Transport for London (TfL), as much as 14 pence in every pound collected is spent on operating the Oyster system. By comparison, open loop can be operated for as little as 10 pence which, given revenues of over £3 billion, amounts to savings of over £100 million³²
- Agencies that institute contactless payments are able to reduce fare collection expenditures by more than 30%³³



Improved security and privacy

Shifting from physical tickets and cash enhances security. Digital payments and ticketing can reduce fraud and secondary sales. Visa contactless cards are built on secure EMV Chip technology, which is proven to reduce counterfeit fraud.³⁴

The open-loop contactless system uses EMV Chip cards for payment via cards or digital wallets that can be used widely outside the transportation system. This system enhances the protection of customer payment card data and eliminates the need to pre-register, which is often necessary when using an app or closed-loop proprietary solutions.

Tapping into data for better transport

The shift to digital ticketing and payments provides access to passenger data that can be used to optimize route scheduling and capacity planning. Real-time passenger counting data can also be integrated into apps that customers use to plan their travel; avoiding more congested times that may present social distancing challenges.

For example, First Bus, one of the UK's largest operators, is launching an update to its mobile app that will allow customers to live-track its available capacity and make informed decisions about their transportation options.³⁵ Increased planning capabilities and insight into passenger volumes is another way a move to digital can help rebuild rider trust in mass transport by giving customers more control over the experience.

A flexible infrastructure, a proven approach

Contactless payments enabled by Visa are built upon our Mobility & Transport Transaction (MTT) framework. This global framework provides a unified structure for open loop contactless payments in mass transportation and multi-modal environments where transaction speed is critical.

The MTT framework also helps transportation operators of any size and complexity add contactless acceptance at the points of system access, allowing riders to use any Visa contactless payment credential with the same trust, security, and reliability they're accustomed to elsewhere. All passengers have to do is tap to ride.

The MTT model enables operators to offer a range of flexible fares, including fixed fares, distance- and time-based fares and multi-modal fares, as well as features like fare capping, concessions, and delay refunds.

By enabling a global standards-based approach, agencies can now provide consumers with a consistent experience no matter where they are or what form of transportation they're using.

Mobility & Transport Transaction (MTT) framework: Interoperable payment solution in an open acceptance model



Features

-  Contactless-only acceptance
-  Deferred authorizations
-  No financial transaction at point of tap
-  Shared merchant/issuer liability
-  Deny list & back office management

Benefits

-  High passenger throughput
-  Versatile, adaptable solution
-  Suited to complex multi-modal transit systems
-  No purchase required
-  Drives down PTO operating costs

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“Contactless means there are fewer queues at the ticketing terminal. There aren’t as many people in the line swiping to get in, because it’s faster. And there are a whole collection of benefits that come with contactless. It creates a multiplying effect.”³⁶

Mary Kay Bowman
Head of Global Seller Product and Solutions, Visa

Moving forward, together

While the current climate is one of uncertainty, one thing remains unchanged: cities, government and private agencies will need to continue to adapt, innovate, and create transport systems that are more flexible, equitable, and sustainable.

Contactless payments enabled by Visa are an important part of that transformation, serving as a key component in an overall set of strategies and solutions that enable seamless, integrated, multi-modal, door-to-door journeys.

Visa’s solutions, experience, and expertise can help government and transportation agencies accelerate recovery and drive economic growth—which can lead to increased health and safety, greater occupational and educational opportunities, and improve the quality of life for urban residents and visitors alike.

Visa’s global urban mobility solutions

Visa is committed to helping transportation authorities and operators transform urban mobility by enabling efficient and sustainable door-to-door travel experiences through connected, secure, digital payment solutions. We would welcome the opportunity to discuss your needs and share our experience and expertise.

To learn more about Visa’s Global Urban Mobility solutions and how we can help, visit visa.com/urbanmobility

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