

Payment Issuance for California Transit

California Integrated Travel Project Market Response Summary

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Caltrans, on behalf of the California Integrated Travel Project

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Disclaimer

This Market Response Summary Report provides a summary of the Market Sounding process that occurred for the California Integrated Travel Project (Cal-ITP) from August to October of 2020. In order to protect the Market Sounding respondents' commercial information, and to foster candor, the information outlined in this report is summarized without reference to specific companies or products. This report will provide clarification as to whether certain information is attributable to market sounding participants or to Cal-ITP.

Caltrans and its regional and local partners conducted this Market Sounding exercise by collecting written information and conducting follow-up interviews about the knowledge and capabilities of various market players and industry professionals. The information outlined in this report represents the individual commercial views and interests of these Market Sounding participants. This report is intended solely for informational purposes and is not to be construed, under any circumstances, by implication or otherwise, as a recommendation for any specific policies, solutions or services.

Executive Summary

A seamless, multimodal transportation system grounded in public transit is critical to meeting California's climate, equity, and economic goals. The California Integrated Travel Project (Cal-ITP) is an initiative dedicated to making travel simpler for passengers and cost-effective for transit operators through three main program areas:

- Improving and standardizing reliable, real-time travel information such as vehicle locations, arrival times, and prices;
- Simplifying fare payment systems using global payment standards suitable to public transportation; and
- Streamlining the verification process for people who are eligible for discounts such as students, older adults, veterans, and low-income travelers.

Cal-ITP's work to date shows strong support from industry partners for statewide action to make it easier to find and use public transportation services. To simplify fare payment, transit agencies are working with Cal-ITP and private sector companies to transition to acceptance of contactless payment solutions such as bank cards and mobile wallets. Contactless payment technologies rely on a global standard called 'cEMV', which has a well-developed market for devices that can read contactless cards/wallets and for the associated back office solutions developed for the public transportation industry. Using global payment standards will allow statewide interoperability among transit operators without the need to deploy a statewide payment system and ensures the same user experience on transit as travelers have come to expect from retail transactions.

The majority of California households already have access to some form of payment (e.g., credit, debit or prepaid bank cards and their digital equivalents) that they could immediately use to pay a transit fare. Approximately 5% of households in California¹ do not make use of any banking services and any payment systems for transit must ensure that people who do not have access to the banking system, or whose banking relationships involve fees such that they use cash instead, can still board a train or bus. Without an alternative, other passenger groups such as children, or people who risk minimum balance or transaction fees they can't afford, or people who do not want to use their bank cards in public transportation, or those who want to travel anonymously would use cash and not benefit from these digital payment systems.

This report investigates barriers to accessing the banking system and contactless payment technologies in order to understand how transit payment systems can ensure a seamless user experience for all. The market sounding exercise verified the barriers to accessing banking products, discovered on-going retail payment industry innovations, and identified areas of opportunity in the payment industry for solutions applicable to public transportation. This document based its findings on interviews with transit operators and written answers and interviews with market players.

Key observations of Cal-ITP's Market Sounding for Issuance

- For the adult population in California, access, cost, and trust are the main barriers to participating in the banking system and having access to contactless payment technologies.
- Contactless payment solutions that do not rely on a formal bank account are becoming ubiquitous.

¹ FDIC Economic Inclusion Report 2019. <https://www.economicinclusion.gov/>

- Financial service providers are tackling access, cost and trust barriers in order to attract customer groups that were traditionally underserved.
- If a transit operator plans to offer payment media that can be used outside of transit, based on global transit operators' experience, significant marketing effort is needed to position those products as a universal payment solution instead of transit smartcards.
- Some considerations, such as 'know your customer' requirements, may mean open payment solutions might not be able to serve all customer segments.
- Due to the fragmentation of the transit market (350+ operators) in California and the novelty of cEMV-based fare collection system in the United States, there is a role for Cal-ITP to organize the payment issuance market for transit.

This report finds that recent and on-going innovations in issuance in the retail payment industry can be leveraged to provide equitable solutions for customers who are willing to use an existing payment credential, but also those who are currently underbanked or unbanked. By addressing traditional barriers to financial inclusion - access, cost, and trust - an evolving industry of payment issuers may be able to meet the transit payment needs of people who used to be underserved by the traditional banks and those that do not intend to use their existing debit or credit card. Looking ahead, Cal-ITP should continue to develop a flexible and targeted fare payment system and work with California transit agencies to better understand the needs of customers who do not wish to pay using an existing payment credential.

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Glossary

Name	Description
Closed loop payments	Payments between the customers of a bank or entity running the payment system and merchants that have a contract with the entity. The Clipper card, TAP card and American Express are examples of closed loop payments.
Cal-ITP	The California Integrated Travel Project
cEMV	Initiated by Europay, MasterCard and Visa, EMV is a global standard for the communication between a payment card and a payment terminal or ATM, maintained by EMVCo. Contactless (cEMV) is a derivative of EMV for contactless media.
Fare media	Transit agencies can choose to allow customers to pay for their ticket with something other than cash, such as tokens, prepaid cards, fare cards, or other digital credentials.
KYC	The 'know your customer' or 'know your client' guidelines in financial services requires that professionals make an effort to verify the identity, suitability, and risks involved with maintaining a business relationship. The procedures fit within the broader scope of a bank's Anti-Money Laundering policy.
Open loop payments	Open loop payments are payments between the customers of any issuing bank with the merchants connected to any acquiring bank, provided that both issuing bank and acquiring banks belong
PCI-compliant	Standards that are maintained by the Payment Card Industry Security Standards Council are met when a process or device is PCI-compliant.
Unbanked	Adults who do not have a checking, savings, or money market account. Individuals who use alternative financial services (one-fifth of adults) may need or prefer to conduct certain financial transactions through providers other than traditional banks and credit unions.
Underbanked	Adults who have a bank account but also use an alternative financial service product, such as a money order, check cashing service, auto title loan, payday loan, paycheck advance, or tax refund advance.

1. Introduction

1.1. The California Integrated Travel Project

Public transportation is foundational to making cities work and meeting California’s environmental, economic, and social equity goals. California’s adopted climate policy includes targets to reduce vehicle miles traveled, to increase transit ridership, and to make it easier to access and to use transit.

However, California residents currently face a complex and disaggregated public transportation network that can be confusing for customers to navigate and expensive for agencies to operate. Even before the COVID crisis and its impact on travel demand, transit agencies faced rising operational costs, falling ridership and farebox revenues, and a growing gap in the consumer experience between transit services and travel alternatives.

The California Integrated Travel Project (Cal-ITP) is addressing these challenges in order to make public transit easier to use and more cost-effective statewide. Cal-ITP is a partnership between the California State Transportation Agency (CalSTA), California Department of Transportation (Caltrans), and intercity and local transit partners to help California deliver on statewide goals² of:

- Improving the customer experience;
- Increasing transit ridership;
- Lowering transportation costs for transit agencies and people riding transit; and
- Reaching environmental targets.

To achieve the State’s vision and make progress towards these goals, Cal-ITP is pursuing three initiatives identified in a 2019 market sounding:³

1. Produce reliable information about available mobility options and their prices (e.g., vehicle arrival time, planned service changes, crowding etc.);
2. Reduce friction in payment and promote contactless fare systems; and
3. Provide a seamless process for transit riders to verify eligibility for discounts (e.g., youth, elderly, commuters receiving employee benefits, veterans, persons with disabilities and low-income riders).

Across these areas, Cal-ITP works with transit industry partners to promote the use of existing global standards for passenger information and payments and ensure that these standards can be easily accessed by rail and transit agencies through the development of tools, resources, and technical assistance.

1.2. Cal-ITP Principles

Cal-ITP’s work is grounded in strong support from public and private sector industry partners working together to improve access to public transit services statewide using the following principles.

Use global standards: Historically, transit fare payment systems have been customized for each city or region and built upon proprietary technologies tailored to fit the unique needs and fare policies of that service. This approach has proven to be inflexible to adapt to changes in technology, consumer expectations, fare policy, newer business models, or the addition of new system components. Further, without global payment

² Statewide goals for Cal-ITP are delineated in California Executive Order EO-N-79-20.

<https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-text.pdf>

³ Results from the market sounding can be found at: <https://dot.ca.gov/cal-itp>

standards, an interoperable customer experience between cities and regions is not possible as each region or agency will have different systems for customers to navigate.

Serve all customer groups: Transit agencies require flexible and targeted fare payment solutions that serve all users, not based on a customer's travel patterns, willingness and ability to use multimodal transportation systems, and financial means (banked, underbanked, unbanked, etc.). As a transportation service providing mobility to all, transit agencies have a responsibility to serve all Californians, not only some.

Improve equity and accessibility for people: Access to reliable and affordable transportation is essential to address poverty, unemployment, health and wellness, education, and a variety of other pressing social issues. Cal-ITP must address how groups who are most disadvantaged can benefit and be provided accessible and more financially beneficial transportation payment and trip planning solutions than they have had in the past, in such a way that the solution can scale and be cost-effective at a statewide level.

Leverage private market developments and public initiatives: California is one of the leading economies in the world, and home to many of the private sector's new mobility and financial technology innovators. To reduce investments to new research and shorten the development period, Cal-ITP will leverage private market developments while ensuring that the proposed solutions are future-proof. Cal-ITP goals correspond to many other state initiatives that promote mobility, equity, economic growth and digital innovation. To conserve the resources of Cal-ITP and speed up implementation, Cal-ITP will leverage other public initiatives.

Scale up from a Minimum Viable Product (MVP): Solutions should be able to satisfy early customers and provide valuable testing of both technology and business models. Feedback collected from early deployments should allow for technologies or solutions to be improved and scaled up to more places, services, and customer groups over time.

1.3. Cal-ITP Work to Date

The 2019 Cal-ITP Market Sounding identified a series of interrelated initiatives that Cal-ITP could deploy along with the State's rail and transit agency partners.⁴ First, Cal-ITP promotes the transition to cEMV allowing transit customers to use contactless payment credentials such as bank cards and digital wallets as a technology approach for statewide interoperability. Through this open systems, Cal-ITP will facilitate digital payment methods that reach people who do not have access to the banking system, such as youth, people who choose not to use a debit or credit card, undocumented people, and/or people who wish to travel anonymously. And finally, Cal-ITP will identify a program structure that allows for private sector participation in transit payment systems to reduce costs and administrative burdens for agencies. Together, these efforts are intended to create a unified payment experience across California without the need for the State to design, develop, and deploy one integrated system just for transportation.

In 2020, Cal-ITP and partner state agencies made significant progress in streamlining the transition to contactless payments for transit. By focusing on merchant service agreements that will allow transit agencies to easily procure the necessary components to accept open payments, Cal-ITP is building a flexible framework for contactless credentials. Cal-ITP has initiatives underway to create a marketplace for acquiring services and payment acceptance services that transit agencies can leverage to accept c-EMV payments.

To demonstrate how transit agencies can relatively quickly and easily begin to accept contactless fare payments, Cal-ITP partnered with Monterey-Salinas Transit (MST). MST will be the first public transportation agency in California to implement contactless fare payment technology to allow riders to use a credit, debit,

⁴ Results from the market sounding can be found at: <https://dot.ca.gov/cal-itp>

prepaid card, or contactless-enabled mobile device to pay their fare on any MST vehicle.⁵ The demonstration is the first Minimum Viable Product launch in a line of statewide rollouts.

1.4. Payment Systems for Public Transit

Transit payments are critical to making traveling by public transportation easy to use and cost-effective for all. Transit agencies and financial industry partners have long struggled with developing systems for customers to pay their fare that were easy to use but also reduced the time and costs for agencies to process and settle. While transit agencies could accept payments like any other merchant, in California they have traditionally accepted cash along with proprietary card-based systems in larger urbanized areas.

Contactless Europay Mastercard Visa (cEMV) is the global standard for digital, open payments—debit and credit cards and mobile wallets. To simplify payment systems in transit, Cal-ITP is promoting use of the cEMV standard, which provides the simple and consistent user experience of retail payments to transit.

A transit service that deploys an EMV-based, open loop fare payment solution allows customers to pay for a trip with a mechanism that can be used anywhere payments are accepted. This is fundamental to ensuring a seamless experience between different transportation systems across the State and between modes of transportation.

Contactless fare payments can also provide operational benefits by improving the reliability of bus service. Global transit agencies have found that boarding times are cut almost in half when tapping (2.75 seconds per passenger) compared to swiping (5.0 seconds per passenger) or paying cash (4.5 seconds per passenger).⁶ For higher-capacity transit systems, contactless payments can help get more people on trains faster. Singapore doubled passenger throughput on its train network after switching from swiping a magnetic card to a c-EMV tap and go system.⁷

Payment systems for transit must ensure that everyone can easily access the system; so, in Monterey-Salinas and other California transit agencies that transition to open payment technology, customers will have two fare payment options: cash and contactless payment credentials such as bank cards and digital wallets. Cal-ITP identified several diverse groups of (potential) transit users who face barriers when it comes to paying for transit with contactless banking products:

1. People who do not have access to banking products
 - a. Children and young people
 - b. People who do not make use of any banking services due to different barriers
 - c. People who are not willing to participate in the banking system
2. People who have access to banking products but do not want to use them to pay for public transportation or want to travel anonymously

Transportation agencies want to better understand the payment preferences and needs of their customers to reduce the amount of cash fares they process. Agencies pay a high cost for accepting, processing, and handling cash, and it creates friction in passengers' experience. Cash fares have also been shown to slow down buses and create safety hazards for bus operators. However, to grow an alternative to cash on public

⁵https://mst.org/news_items/mst-announces-a-new-partnership-with-caltrans-visa-introducing-contactless-fare-payment-demonstration/

⁶ Transportation Research Board. 2013. "TCRP Report 165: Transit Capacity and Quality of Service Manual Third Edition." Transit Cooperative Research Program 165, 6-7.

⁷ Alexis, Perrotta. n.d. "Fare Collection and Fare Policy." Transit Leadership Summit, 86.

transportation, everyone must have access to banking products, or alternative payment methods must be made available.

2. Market Sounding for Payment Issuance

2.1. Barriers to digital payment methods

As cEMV-based contactless payment technology is adopted statewide, many people will have more ways to transact. According to the latest FDIC Economic Inclusion report, almost 95% of households in California have access to a checking or savings account at a bank or credit union.⁸ For many people, the ease and convenience of paying for transit services the same way that they buy other retail products and services will be a substantial improvement in customer experience and put transit on par with other transportation services in the market.

However, public transportation operators serve an important role providing mobility to everyone in the community, especially those who are most vulnerable. Transit users are more likely to have lower incomes; although 13% of US households had household incomes of less than \$15,000 in 2014, 21% of transit-using households had incomes below this level.⁹ Compared to the general population, transit riders tend to be younger overall and more likely to be people of color.

Payment systems for transit must ensure that people who do not have access to the banking system, such as youth, people who choose not to use a debit or credit card, undocumented people, and/or people who wish to travel anonymously, can still board a train or bus. Even before COVID-19, just over twenty-five (25.8%) percent of California households had not used a bank credit product in the past 12 months, and just over five (5.6%) percent of California households were unbanked and didn't make use of any banking services.¹⁰ While statewide information is limited on the share of unbanked transit riders, based on these statistics, we expect that un- and underbanked customers are overrepresented in transit compared to statewide average.

In the FDIC report, participants pointed to a number of reasons for not having a bank account, but about half of unbanked households cited "Don't have enough money to meet minimum balance requirements" as a reason for not having an account—the most cited reason. "Don't trust banks" was cited by approximately one-third of unbanked households as a reason for not having an account and was the second-most cited main reason. At a high level, barriers to financial inclusion can be summarized as:

- **Access.** Beyond meeting the minimum balance requirements, people said that travelling to bank locations was difficult and bank hours weren't convenient. They also cited personal identification, credit score, or account issues, such as their name, as barriers.
- **Cost.** Particularly for lower-income households, bank account fees were too high and/or unpredictable to justify an account.
- **Trust.** Unbanked households reported not trusting banks, along with privacy concerns as reasons for not engaging with the banking sector.

⁸ FDIC Economic Inclusion Report 2019. <https://www.economicinclusion.gov/>

⁹ Updated Default Values for Transit Dependency and Average Length of Unlinked Transit Passenger Trips, for Calculations Using TAC Methods for California Climate Investments Programs Technical Report. California Air Resources Board. August, 2019. ([link](#))

¹⁰ FDIC Economic Inclusion Report 2019. <https://www.economicinclusion.gov/>

In undertaking this market sounding for payment issuance, Cal-ITP is interested in understanding how the State can ensure these customers, and people that don't want to use their own payment credentials, have a seamless and easy way to pay for transit. This market sounding aims to provide the transit industry an understanding how recent and on-going innovations in the retail payment industry can be leveraged to provide equitable solutions to not just the customers who can and are comfortable to use their regular payment credential but are also to those people who used to be underserved by the traditional banks, and others that don't intend to use their existing debit or credit card.

2.2. Goals of Market Sounding for Payment Issuance

Cal-ITP envisions payment means for transit that 1) run on cEMV rails, 2) have digital (e.g., mobile wallet) and/or physical (e.g., payment card) form, 3) users can add cash value for a low or no fee through an extensive network, 4) can be quickly obtained and allow for anonymous travel and/or 5) give access to financial services. The goal of the Market Sounding for payment issuance was to gain feedback from issuers and financial service providers regarding these features and the cost and complexity of providing them. Specifically, we focused on:

- gain better understanding of barriers for accessing the banking system and identify alternative digital payment methods;
- learn about new and innovative products, services, and capabilities in the market available to the State of California;
- discover potential commercial benefit to private parties issuing payment credentials, such as physical or digital cards; and
- understand the ecosystem considerations from private parties, such as existing partnerships or framework contracts.

CalSTA, Caltrans, and their rail and transit partners, acting through the Cal-ITP Steering Committee, plan to use the results of the Market Sounding to refine, adjust, and validate viable approaches to payment systems for transit agencies – enabling a seamless public transportation experience for the residents, visitors, businesses, and institutions of California.

2.3. Market Sounding Process

Caltrans, on behalf of Cal-ITP, issued the Market Sounding document on July 31, 2020 and organized a kick-off event on August 7, 2020. Both the document and the kickoff event presentation slides are available in the Appendix of this document. Thirty (30) people attended the online Market Sounding Kick-off event. Interested parties had the opportunity to respond to the Market Sounding document or express interest to Cal-ITP in writing. If needed, Cal-ITP conducted interviews with selected entities to further explore responses. A list of companies that participated is included in Appendix 3.

This Market Response Summary Report highlights lessons learned from written responses from twenty (20) companies, and from subsequent interviews conducted by Cal-ITP through early October. In order to protect the Market Sounding respondents' commercial information, and to foster candor, the information outlined in this report is summarized without reference to specific companies or products. This report will provide clarification as to whether certain information is attributable to market sounding participants or to Cal-ITP.

3. Key Findings

3.1. A Decoupling of Banking from Digital Payments

The early 2000's brought the first companies and services that provided digital payment services to merchants and consumers online which did not rely on banks transferring money. The ecosystem has evolved substantially to the point where in some economies a large share of all payments take place outside the traditional banking ecosystem (China: AliPay, WeChat) and where instant payments using mobile apps is becoming the new normal for key market segments (US: PayPal Cash Card, Venmo, Apple Cash, Square Cash).

This ecosystem provides opportunities for unbanked and underbanked customers to have a new way to access financial services. Traditionally, these individuals had to rely on cash to make their payments or paid high fees to maintain a bank account that allowed them to make digital payments.

For example, PayPal/Venmo Cash Card and the Square Cash App are leveraging peer-to-peer (P2P) transactions to allow people to quickly sign up for an account. In the transit space, Mastercard has experimented in Chicago and Philadelphia with EMV-compatible transit cards with debit card features that a customer can opt-in to. In California, the Angeleno Card in Los Angeles demonstrated that people are willing to overcome issues of access and trust if costs are kept at zero to negative.

With these new issuance market players and products emerging on the basis of global c-EMV standards, Cal-ITP could leverage these private sector initiatives for transportation. As products and services in the marketplace are being developed, deployed, and tested, it will be important to demonstrate how transportation use cases could be an important entry point for customers. The State should act as a facilitator and evaluator to connect some of these promising ideas to transit agencies willing to partner with them.

3.2. Payment Industry Is Addressing Barriers to Financial Inclusion

Financial service providers are targeting customer segments that have been traditionally underserved by the banking industry. These service providers customized products that focus on the needs of specific segments of this market - such as youth, racial groups, geographic areas, and language preferences. By customizing their issuing services (cards or mobile wallets) to meet the needs of traditionally underserved communities, these service providers address known barriers to participating in the banking system:

- **Access:** offering bank accounts without minimum balance requirements and allowing lower identification requirements than a social security number to ease the onboarding process.
- **Cost:** the services of these issuers can be accessed without any card or monthly account fees, and they provide free or lower price withdrawal options at ATMs and cash-top up functions at retail and other networks.
- **Trust:** some of the issuers explicitly target underserved groups either with direct marketing or leveraging trusted community allies and messaging.

Some issuers allow new customers to quickly open an account with limited requirements, such as a name and an email address, and then allow people to gradually move up to a full banking relationship. For example, if someone has limited credit, then they can use more limited debit-based services until they have built up a relationship with the issuer to access credit.

To be able to address access challenges and provide customers with opportunities to load cash into their account, payment service providers have negotiated better terms with retail stores, ATM networks,

government agencies, financial networks, and other industry players. The fees and terms were negotiated for ATM and top-up services based on the expected user volume and overhead, as retail partners negotiate to see additional foot traffic in their outlets. As the use of these services grows, fees may decline.

3.3. 'Know Your Customer' Requirements Are a Challenge

Financial regulation in the United States includes anti-money laundering "Know Your Customer" or KYC requirements, which require a financial institution to verify the identity of the account holder.¹¹ For open-loop debit and credit cards, the regulations apply when the customer opens an account or obtains access to the credit. For open loop prepaid products, these regulations apply if the prepaid product is reloadable.

While the ability to access some basic financial tools is a recent market innovation, the KYC rules will pose a challenge for transit users who wish to remain anonymous due to privacy concerns, those with identity verification challenges, or people who don't have a government ID. As an example, undocumented residents in California may obtain an AB60 driver's license to support a financial institution's identity verification, but for those undocumented residents that are ineligible for an AB60 driver's license or under 16, there may be no options to obtain a valid identification document easily accepted by financial institutions.

If certain requirements are met¹², some prepaid products, such as non-reloadable cards and closed loop payment products, are exempt from the KYC rules. This has allowed companies to sell prepaid cards that only trigger a KYC requirement, and thus customer identification, when the first reload occurs, and other companies to issue closed loop cards that become open-loop after the customer opts-in and creates an account.

To ensure access for all and to find the most attractive solutions to reduce the use of cash for transit operators, Cal-ITP is searching for alternative solutions. Under this Market Sounding for Payment Issuance, Cal-ITP engaged with market players who are active in the traditional transit fare collection market. They confirmed that cEMV is gaining market share among transit operators globally, but they also identified a need for alternatives to banking products (debit/credit cards and wallets) to serve all customer groups. They acknowledged that running multiple fare collection systems (e.g., card-based system and cEMV) in parallel is costly for transit operators. These organizations are offering or developing card solutions that rely on cEMV as a standard but restricted to transit use only. These products are not able to offer broader banking or digital payment services to the users, and they require the set-up and payment for a top-up network to add cash to these cards.

Cal-ITP is also considering a third path; a hybrid option that would allow transit users to obtain a card/digital wallet with none to low registration requirements open to transit use initially, and later by providing

¹¹ See: 31 C.F.R. § 103.121. This regulation implements [Section 326 of the USA Patriot Act](#), and requires banks to have a Customer Identification Program. These anti-money laundering and anti-terrorist activity financing requirements generally include name, address and official identification number (such as a national identity card, driver's license, social security number, passport number, or other government-issued identification). For more information:

<https://www.fincen.gov/sites/default/files/guidance/finalciprule.pdf>

¹² See: Bank Secrecy Act Regulations; Definitions and Other Regulations Relating to Prepaid Access, 76 FR 45403, 45413, n.36. This rule exempts certain closed loop prepaid products from customer identification requirements. For more information: <https://www.fincen.gov/resources/statutes-regulations/guidance/final-rule-definitions-and-other-regulations-relating>

additional personal information the card/wallet owners could upgrade to additional financial services. This Market Sounding could not reveal the costs and potential barriers associated with a hybrid option. Therefore Cal-ITP will research this option further.

3.4. Trusted Marketing and Clear Messaging

Some transit agencies in the U.S. conduct traveler surveys to understand their customers, but small and more rural agencies rarely have the resources to do so. Further, these surveys often focus on understanding the travel needs of customers as defined by the transit agency, and do not include questions about fare payment, fare policy, and/or financial inclusion. As a result, transit agencies often do not know the banking status of customers, their ability or interest in paying with cash or a contactless option, and their desire for more ways digital to participate in the economy.

On the other hand, the experience of transit operators in the U.S. that introduced open payment products next to their existing smart cards (a transit smartcard that can be used for paying for goods and services outside of transit, e.g., in retail shops) shows the importance of marketing and clear messaging. These operators experienced low penetration of open payment cards and high share of damaged or lost cards since transit users associated these cards with disposable transit cards instead of a financial services product.

Partnerships with community-based issuers and organizations could be used to drive awareness and interest among transit users. Depending on the type of transit customers that are of interest, this could be an interesting opportunity to also be targeted in working with issuing partners that already have the trust of a community. There is a clear role for Cal-ITP to work with other State agencies, the transit industry and product specialists to leverage private sector marketing and communications platforms, scale and expertise.

4. Cal-ITP Next Steps

Participants in this Market Sounding for Issuance supported Cal-ITP's approach to leverage global payment standards (such as cEMV) and the open market to serve all customer groups, and to improve equity and accessibility while creating a unified, digital payment experience in transit. We conclude that several financial service providers and account and card issuers are tackling barriers that traditionally prevented underserved customers from accessing financial services, and in many cases can provide contactless payment options for these customer groups. Therefore, Cal-ITP expects the share of unbanked households to continue to decrease in the future, reducing the reflex for transit-specific payment cards.

However, based on the results of the Market Sounding for Issuance we see that the *current* state of the issuance market does not provide sufficient solutions for every existing transit payment use case, and cash may need to continue to be accepted for some time.

Cal-ITP anticipates using the results of this market sounding in the coming year to inform the on-going development of program initiatives, projects, and engagement efforts. With the rapid and on-going shifts in the marketplace identified through this market sounding, coupled with the global shift towards contactless payments as a response to the COVID-19 crisis, we see a prominent first use case role for transit payments in the development of these products and services.

Therefore Cal-ITP identified the following initiatives going forward:

- Further analyze three issuance options in the payment marketplace that could allow transit customers who currently rely on cash to have access to contactless and digital payment options: 1) banking and financial service products, 2) cEMV-based solutions restricted to transit use, and 3)

hybrid option starting out as a transit card or wallet that can evolve towards additional financial services. Cal-ITP will assess costs and benefits associated with these solutions for customers, transit operators and the State of California.

- Organize Minimum Viable Product demonstrations supported by financial service providers and interested partner transit agencies to evaluate promising products and services in the payment marketplace. During these demonstrations Cal-ITP would have the opportunity to learn about potential opportunities and challenges of each solution and identify areas where the State of California can or should engage to further develop the market.
- Facilitate a marketplace that ensures that financial service providers have easy access to a statewide transit market (instead of interfacing and negotiating terms with 300+ transit operators separately), and that the transit operators can readily access innovative and cost-effective solutions. This marketplace should allow for continuous improvements and innovations. Based on Cal-ITP's earlier experience we are interested in an (open) partnership framework that does not rely exclusively on traditional public procurement processes, and instead relies on facilitating demonstrations and other mechanisms to align private incentives with statewide objectives.
- Cal-ITP seeks to understand lessons learned from other large financial initiatives (e.g., Covered California, Calfresh or the Angeleno Card in Los Angeles) to develop an informed approach to the role of the State of California in facilitating access to the financial system. We will couple the findings of the Market Sounding for Issuance with information and customer feedback from other US-based transit agencies that have tested fare payment systems that have debit features, such as the Ventra card in Chicago and the Key Card in Philadelphia. In addition, Cal-ITP will interview community-based and social service organizations who already work within communities that are underbanked or unbanked to better understand their mobility challenges and barriers to financial inclusion, as well as their use of transportation services.

5. Conclusion

This study confirmed a key finding of the 2019 Cal-ITP market sounding, regarding "the level of candidness and trust that can be created if objectives align between government and industry." The market innovations described in this report reinforce efforts by the State of California to facilitate an (open) partnership framework that does not rely exclusively on traditional public procurement processes and instead relies on innovative mechanisms to align market incentives with statewide objectives.

Regarding payment issuance for transit, private sector companies supported the need for ongoing technical and financial assistance from the State to transit agencies for demonstration projects to foster a flexible platform that is eventually open to all transportation service providers and supports open-loop payments. There is a clear role for Cal-ITP to support standards and to organize the transit industry in California to ensure that transit is considered as the payment issuance market develops.

Appendix 1: Kick-off Event presentation

Download the presentation deck at the following link: <https://dot.ca.gov/cal-itp>

Appendix 2: Final Market Sounding Document and Notice

Download the market sounding document at the following link: <https://dot.ca.gov/cal-itp>

Appendix 3: List of companies participating in Market Sounding Kick Off Event

Companies:

Acumen Transit
B2 Payments USA
Bytemark
Conduent Transport Solutions
Cubic
GreenDot
Hitachi Rail
InComm
Jib
Marqeta
Masabi
Mastercard
MoCaFi
Modeshift
Paypal
Scheidt & Bachmann
Thales
Token Transit

Transit Agencies:

CTA, Chicago, IL
MBTA, Boston, MA
SEPTA, Philadelphia, PA
Tri-Met, Portland, OR

Appendix 4: Additional information

Global Payment Standards for Transit

While paying for goods with Payments in the physical retail environment has experienced rapid digitalization in recent years, witnessing the entry of a number of new payment types, Contactless is a secure, digital technology based on EMV, the global standard for smart cards. It can be deployed on payment cards, mobile phones and many other devices such as wearables. And its aim is to make payments quicker and more convenient – while keeping them secure. Consumers pay by simply ‘tapping’ or ‘hovering’ their card or device when prompted by the terminal.

EMV-based open loop fare payment systems also provide benefits to transit agencies by reducing the upfront and long-term operating cost of proprietary fare collection systems. After moving to a contactless open payment system, Transport for London reduced the share of revenue spent on fare collection from 14% to 9%.¹³ Hong Kong cut its fare collection expenditures in half when it switched from a magnetic swipe card to contactless, c-EMV technology and Washington, D.C., spends 10c per dollar collecting cash fares but just 4c per dollar on credit/debit card fares.¹⁴

For transit customers, there are significant benefits of an EMV-based open loop fare payment solution, such as:

- Riders can use their own payment credentials and bank cards to pay for fares without the need to convert funds at a fare vending machine;
- Riders can pay as they go (PAYG) with the flexibility to pay only for trips taken;
- Eliminates the issue of residual prepaid stored value left on a card or secondary account once a trip is complete; and
- Compatible with mobile solutions (e.g., mobile wallets such as Apple Pay, Google Pay or Samsung Pay) reducing reliance on fare vending machines or proprietary apps to purchase or reload fare media.

People who ride public transit view contactless fare payment as easier and more convenient than proprietary, card-based fare systems. A 2016 survey conducted by Transport Focus in the United Kingdom found that 84% of customers cite “speed” and 79% cite “ease” as reasons for using contactless for retail payments and 45% of people said they would feel more positive toward public transit if they could use contactless payments.¹⁵

Cal-ITP Transit Payment Roles

Cal-ITP is developing tools, resources, and systems that are flexible and adaptable to different size agencies, service areas, and customer needs in order to assist public transit agencies with implementing contactless open payment systems. This modular approach allows agencies to have more control over their payment platform and to be more responsive to technology and trends in this rapidly evolving industry. Each role in the transit payment environment is described below.

¹³ Mastercard. n.d. “Contactless payments travel well in London.” Mastercard Transit Solutions.

¹⁴ Perotta, 86.

¹⁵ UK Finance. 2019. “Contactless Transit: Implementation in the UK, 10.

- The Transit Agency provides transportation services, sets fares and ensures there is payment acceptance infrastructure on-board vehicles and/or in stations. It typically holds a contract with a system integrator or a set of vendors to provide and maintain this infrastructure, and to integrate with the acquirer.
- The Acquirer processes payment transactions for its Transit Agency customers.
- The Technical Accounts Manager stores tap and payment transactions for all credentials for customer service and fare integration purposes. This may also include an entry point for customers to obtain payment-related customer services, such as registering for an eligible fare discount, obtaining transaction overviews, and submitting claims and complaints.
- The Payment Network ensures interoperability and processes and routes transactions. For open loop credentials, the relevant Payment Networks are Visa, Mastercard, Discover and American Express.
- The Issuers are financial institutions that provide c-EMV credit, debit and/or pre-paid open loop credentials to account holders and are responsible for final authorization of payment (subtracting paid fare amount from the customer account) and performing transaction settlement through Payment Networks.

Cal-ITP has initiatives underway to create a marketplace for acquiring services and payment acceptance services that transit agencies can leverage to accept c-EMV payments.