

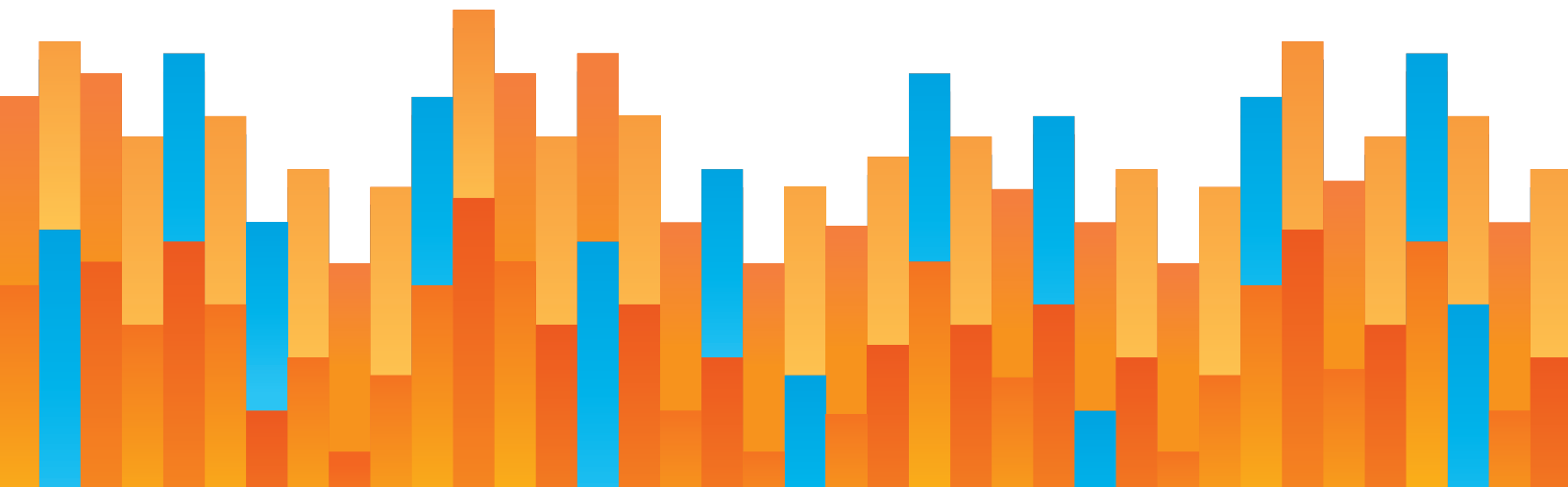


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PROVIDING ELECTRONIC TOLL COLLECTION TO THE UNBANKED AND UNDERBANKED: A CASE STUDY OF IMPROVED ACCESS TO ALL- ELECTRONIC TOLLING

by Daryl S. Fleming, Ph.D.
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EXECUTIVE SUMMARY

Economic inclusion—making economic opportunities available to under-served social groups—is critical to a sustainable economy. Providing everyone with readily available and affordable access to the U.S. transportation network, including tolled facilities, is part of the solution.

Technologies such as electronic toll collection (ETC) and all electronic tolling (AET) have made toll facilities safer and more efficient, with savings in toll operating costs being passed on as discounts to motorists who enroll in these programs. However, participating in ETC and AET programs can be more difficult and expensive for those that do not have ready access to conventional financial services, such as the *unbanked* (those who have no bank account) and the *underbanked* (those who have a bank account but continue to use financial services outside mainstream financial markets).

The Federal Deposit Insurance Corporation estimates that 5.4% of U.S. households (approximately 7.1 million) were unbanked in 2019. Others have estimated over 20 million households were *underbanked* in 2019. Recent elimination of cash options at many toll facilities in response to the COVID-19 pandemic could create problems for the unbanked, who function mostly in the cash economy. In addition, the pandemic has likely increased the size of the unbanked community during 2020-21, especially in urban areas.

Several toll road providers have implemented solutions that are now serving the unbanked and underbanked communities. Three of those described in this brief are the:

- AutoExpreso® program in Puerto Rico
- SunPass® in Florida, and
- FasTrak® in San Francisco.

These programs vary in the method with which they serve motorists, but all three seem to be serving the unbanked and underbanked communities in a user-friendly manner. Providing one or more user-friendly tolling options for the unbanked and underbanked is important to ensure economic inclusion for everyone. These efforts may also appeal to other motorists (as has occurred in Puerto Rico). Therefore, if implemented in a cost-effective manner, they may also have a significant impact on a toll road's net revenue by reducing toll collection costs.

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PART 1

INTRODUCTION

Toll roads and bridges provide an increasingly important contribution to U.S. mobility. Recent technical improvements enabling electronic toll collection (ETC) and all-electronic tolling (AET) involve financial operations that typically require access to conventional financial services, including credit card payments and, most recently, smartphone apps. By eliminating conventional toll plazas, these innovations make toll operations safer and more efficient. However, they also make access to these critical transportation facilities more difficult and expensive for those who do not have ready access to conventional financial services. Recent elimination of cash options at many toll facilities due to the COVID-19 crisis has exacerbated this problem.

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... access to and affordability of the transportation system is often overlooked as a problem for the unbanked (nobody in the household has a checking or savings account at a bank or credit union).

”

Economic inclusion—making economic opportunities available to under-served social groups—is critical to a sustainable economy. This includes providing readily available and affordable access to services that enhance economic opportunities, including conventional banking systems and the transportation network.¹ However, access to and affordability of the transportation system is often overlooked as a problem for the unbanked (nobody in the household has a checking or savings account at a bank or credit union).² It is also often a problem for *underbanked* households (they have a bank account but continue to use financial services outside of mainstream financial markets)—many of which distrust conventional banking options.

The new, automated transportation toll services, such as ETC and AET, effectively lock out the unbanked, as well as those who distrust conventional banking options, from the logistical benefits and pricing discounts they offer.³ Providing options for user-friendly, low-cost access to modern toll facilities for the unbanked and others is a part of the economic inclusion solution.

¹ European Bank for Reconstruction and Development, *Economic Inclusion Strategy 2017-2021*, May 2017, 2.

² Mark Kutzbach, et al., Federal Deposit Insurance Corporation, *How America Banks: Household Use of Banking and Financial Services, 2019 FDIC Survey*, 2020, 1; David A. King and Juan Francisco Saldarriaga, “Access to Taxicabs for Unbanked Households: An Exploratory Analysis in New York City,” *Journal of Public Transportation*, Vol. 20, No. 1, 2020. 1.

³ Mary Eberly, “Access for the Unbanked—Equity with Electronic Tolling and Contactless Transit Payment,” *State Smart Transportation Initiative (SSTI)*, 8 December 2014.

PART 2

THE UNBANKED AND UNDERBANKED COMMUNITY

2.1

THE ESTIMATED SIZE OF THIS COMMUNITY VARIES SIGNIFICANTLY

According to the Federal Deposit Insurance Corporation (FDIC), an estimated 5.4% of U.S. households (approximately 7.1 million) were unbanked in 2019.⁴ In 2017 the FDIC also reported that 18.7% of U.S. households were underbanked.⁵ Other research estimates that as many as 20% of American families (over 22 million households) are unbanked, and that a nearly equal number of other families (over 20 million households) are underbanked.⁶ This puts these people at a disadvantage for both the availability and cost of financial services—as well as user-friendly access to and affordable use of toll roads, toll bridges, and toll lanes.

⁴ Kutzbach, et al., *How America Banks*, 3.

⁵ Gerald Apaam, et al., *2017 FDIC National Survey of Unbanked and Underbanked Households*, Federal Deposit Insurance Corporation, 2018, 54-56.

⁶ National Community Investment Fund, Retail Financial Services Initiative, *From the Margins to the Mainstream: A Guide to Building Products and Strategies for Underbanked Markets*, March 2008, i-ii.

2.2

TRENDS IN THE DATA AND ANTICIPATED IMPACT OF COVID-19

The pandemic's extensive disruptions to our economy likely have a disproportionate impact on the unbanked community. Changes in the socioeconomic circumstances of U.S. households have historically contributed to changes in the unbanked rate. For example, the unbanked rate rose from 7.6% in 2009 to 8.2% in 2011 during the Great Recession. Widespread unemployment and the changing employment landscape as a result of COVID-19 are anticipated to increase the size of the unbanked community.⁷

2.3

WHY THE UNBANKED COMMUNITY EXISTS

The reasons for the extensive size of the unbanked and underbanked communities are many and varied, making it difficult to cost-effectively serve them.

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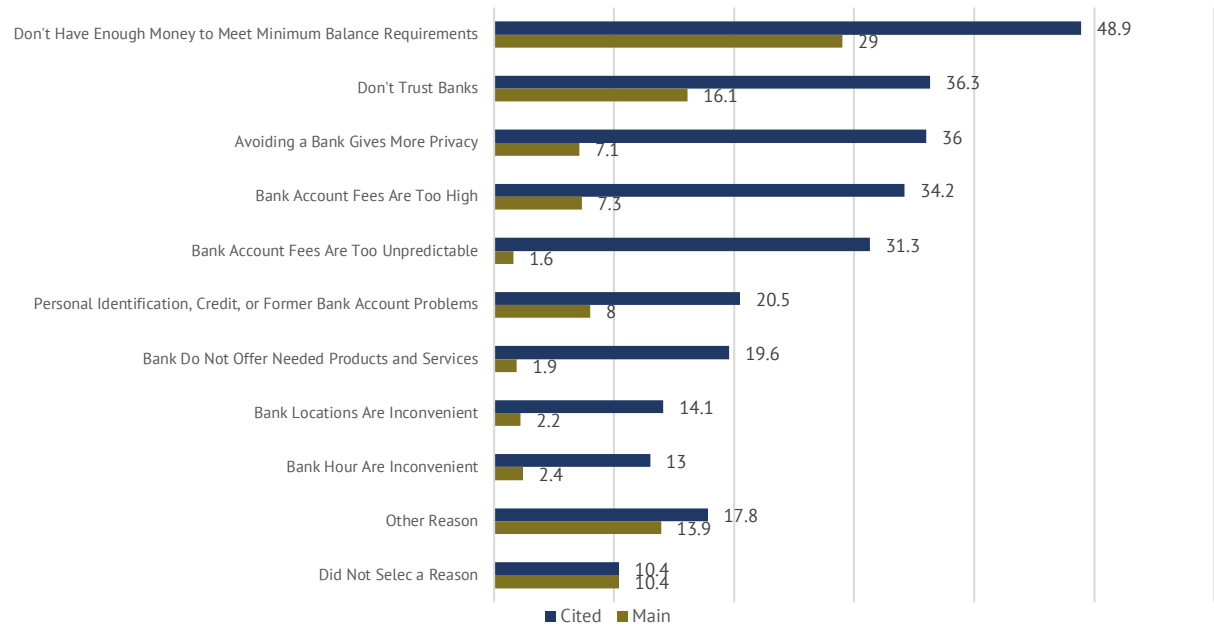
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A major fraction of households that do not use formal banking have low income. People who work for cash (e.g., most of their income is in tips) and those who do not have regular paychecks may not have enough income to warrant a checking or savings account. Bank and credit card fees are another significant deterrent factor, as are personal identification, good credit, and other requirements (some regulatory and some operational) imposed by most financial institutions. Many also distrust the formal banking system. Immigrants—both legal and illegal—are less likely to have formal bank accounts than U.S. citizens. In most communities, low-income and immigrant status are associated with most of the unbanked and underbanked populations.⁸

⁷ Apaam, et al., *2017 FDIC National Survey of Unbanked and Underbanked Households*.

⁸ David A. King and Juan Francisco Saldarriaga, “Access to Taxicabs for Unbanked Households: An Exploratory Analysis in New York City,” *Journal of Public Transportation*, Vol. 20, No. 1, 2020, 1.

FIGURE 1: REASONS FOR UNBANKED HOUSEHOLDS NOT HAVING A BANK ACCOUNT, 2019 (PERCENT)



Source: Mark Kutzbach, et al., Federal Deposit Insurance Corporation, *How America Banks: Household Use of Banking and Financial Services, 2019 FDIC Survey*, 2020, Figure ES.3, 3.

These reasons for banking hesitancy reflect not only poverty but also mistrust of the banking system—a cause unlikely to be overcome easily. This is particularly relevant for ETC programs that automatically debit a bank or credit card account once a specific threshold has been reached. Moreover, many of these households have workers who depend on easy and low-cost access to the U.S. transportation system to help lift them out of poverty. It’s important to reach these underserved populations where they’re at now, rather than trying to change their cultural views on the banking system.

2.4

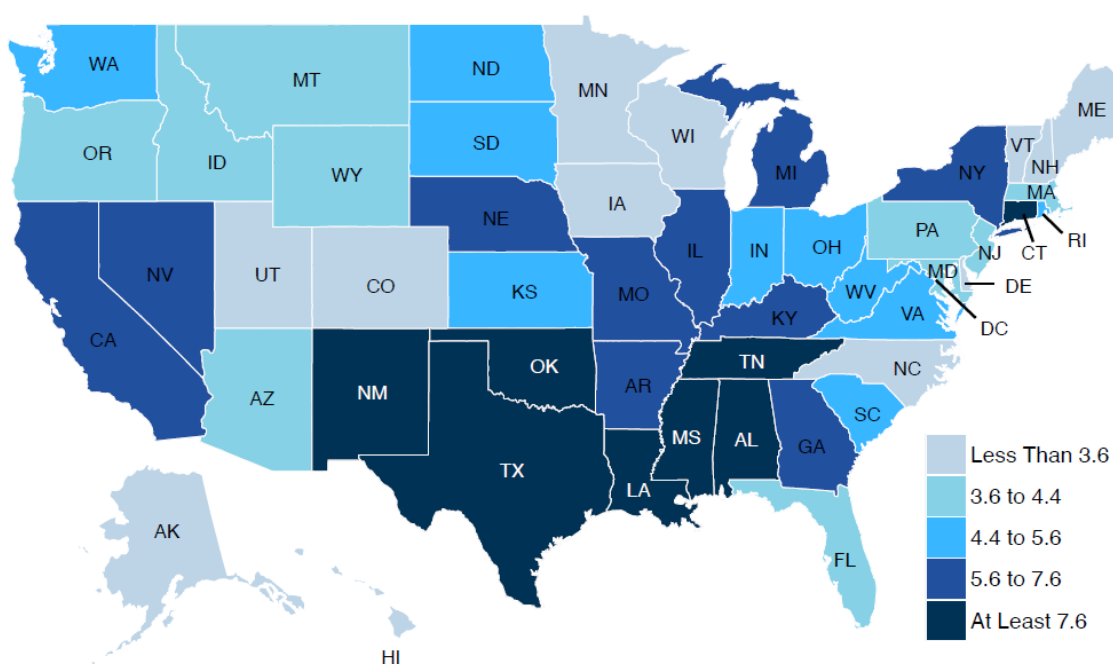
GEOGRAPHICAL VARIATIONS IN THE UNBANKED COMMUNITY

Unbanked household rates by state vary significantly. Figure 2 provides a graphic summary of 2019 FDIC estimates. A tabular summary of these data is also available.⁹

⁹ Kutzbach, et al., *How America Banks: Household Use of Banking and Financial Services*, Appendix A.3.

Unbanked household rates tend to be the largest in the South, with unbanked rates in Texas, New Mexico, Oklahoma, Louisiana, Mississippi, Alabama, and Tennessee exceeding 7.6%. Other states with relatively high unbanked household rates include several with large urban areas, including California, Georgia, Illinois, New York and Michigan, having rates from 5.6% to 7.6%. Several of these states also have major toll facilities. The reasons for these states having the largest rates of unbanked households include large immigrant populations and/or portions of urban areas where poverty is significant.

FIGURE 2: UNBANKED POPULATION PERCENTAGES BY STATE, 2019



Source: Mark Kutzbach, et al., Federal Deposit Insurance Corporation, *How America Banks: Household Use of Banking and Financial Services, 2019 FDIC Survey, 2020, Figure 3.2, 15.*

2.5

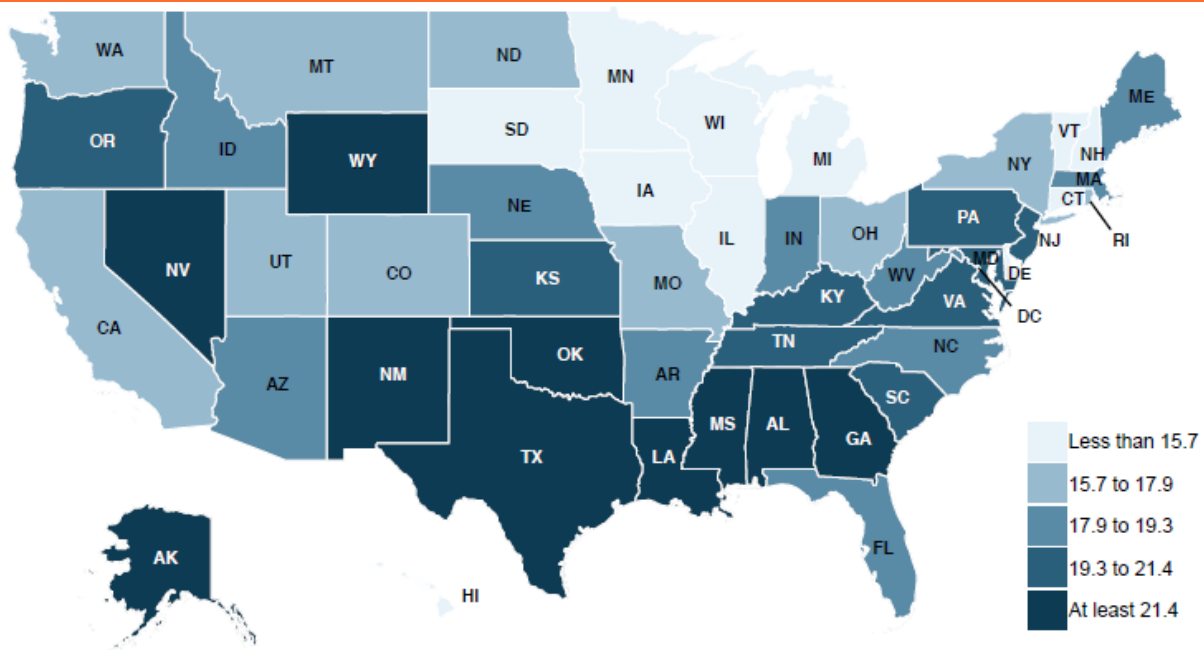
GEOGRAPHICAL VARIATIONS IN THE UNDERBANKED COMMUNITY

Underbanked household rates also vary significantly by state. Figure 3 is a graphic summary of 2017 FDIC estimates. (A graphic summary of 2019 data was not available.) A tabular summary of these data is available.¹⁰

¹⁰ Apaam, et al., *2017 FDIC National Survey of Unbanked and Underbanked Households, 2018, Appendix A.9.*

The estimates of underbanked households by state are significantly higher than unbanked households—up to three times the rates for unbanked in each state. The pattern of underbanked households by state also varies somewhat from that of unbanked households.

FIGURE 3: UNDERBANKED U.S. HOUSEHOLD RATES BY STATE, 2017



Source: Gerald Apaam et al., 2017 FDIC National Survey of Unbanked and Underbanked Households, 2018, Figure 3.4, 21.

In many locations, the size of the unbanked and underbanked communities that could benefit from an ETC payment option to serve them is significant. In 2017 the range of possible households that could have benefited in the Atlanta-Sandy Springs-Roswell, Georgia MSA would have been somewhere between 7.5% (the unbanked households) and 35.4%—the sum of the unbanked and underbanked (27.9%) households in this region.¹¹

Summing the unbanked and underbanked households gives us a very aggressive estimate of the number of households that could benefit from an ETC participation plan focused on serving this community. Alternatively, the benefits of convenience and anonymity that typically come with ETC payment options for the unbanked community could also be utilized by those in the underbanked community and others that distrust conventional banking options who chose to participate in the program.

¹¹ Ibid. 20-21.

PART 3

ETC SOLUTIONS FOR THE UNBANKED AND UNDERBANKED COMMUNITIES

Except where statutory and regulatory requirements have forced mainstream financial groups to provide solutions for this share of the financial market, little has been done until recently to improve the lack of mainstream financial services for unbanked and underbanked households. There are few examples to guide service offerings to this market.¹² Nevertheless, some toll road providers have implemented solutions to serve their unbanked and underbanked customers. The more innovative of these are presented in the following sections.

3.1 PUERTO RICO'S AUTOEXPRESO[®] PROGRAM

In 1999, the Puerto Rico Highways and Transportation Authority (PRHTA) was collecting approximately \$10.5 million in tolls each month—manually and by Automatic Coin Machine

¹² National Community Investment Fund, Retail Financial Services Initiative, *From the Margins to the Mainstream: A Guide to Building Products and Strategies for Underbanked Markets*, March 2008, i - ii.

(ACM). However, motorists encountered major delays during peak periods at its main toll plazas in the San Juan Metropolitan Area (SJMA). Queues during the morning commute were sometimes seven miles long at the Buchanan Toll Plaza, a barrier gateway immediately west of San Juan. Motorists endured similar problems at the Caguas Norte toll plaza immediately south of San Juan. Afternoon traffic leaving the city incurred similar delays. Annual traffic growth rates of 4% to 6% were projected. Encroaching businesses and terrain problems would have made widening the plazas to increase the number of toll lanes very expensive. Other toll plazas in the SJMA encountered similar, though less severe, challenges.



PRHTA decided to introduce ETC on the island to reduce plaza congestion and better serve its customers.... However, the large unbanked and underbanked community in Puerto Rico posed a unique challenge.



PRHTA decided to introduce ETC¹³ on the island to reduce plaza congestion and better serve its customers. Several toll providers on the mainland had increased throughput at dedicated, roll-through ETC lanes from 400 vehicles/lane/hour to up to 700 vehicles/lane/hour. Providers implementing ETC lanes bypassing their toll plazas realized ETC throughputs approaching 1,800 vehicles/lane/hour. However, the large unbanked and underbanked community in Puerto Rico posed a unique challenge.

At that time, most U.S. ETC programs were based on a pre-paid toll enrollment program model. Motorists would complete an application, provide their vehicle information, license plate data, and personal billing information, and make a deposit to their account (typically by credit card). To sustain operations in a pre-paid mode, motorists were required to replenish their account by credit card or automatic withdrawal from their bank account through the Automated Clearing House (ACH) process once the pre-paid toll balance dropped to a pre-determined threshold. Motorists were issued a transponder (tag) for their vehicle which, once installed, entitled them to use the ETC tolling option.

¹³ AutoExpreso®, <https://www.autoexpreso.com/.shtm>, 18 February 2021.

However, in 1999 more than 50% of the licensed drivers in Puerto Rico did not have a bank account, and only about 25% of the licensed drivers on the island had a credit or debit card. Unless the PRHTA issued its own credit card, a business it was not interested in or chartered to do, deployment of the existing ETC model would have required approximately half its patrons to visit a customer service center to deposit cash to replenish their accounts—which would have been very expensive for the PRHTA to sustain and not very user-friendly for its customers. Therefore, an alternative operations plan was required.

Pre-paid cell phone programs were already readily accepted by the public and successful on the island. In addition to establishing and sustaining the cell phone network, pre-paid cell phone service required creating a distributed network of point-of-sale (POS) terminals, preferably operated by the private sector. Once integrated, these POS terminals could be used to activate accounts and distribute tags. They could also be used to capture cash deposits on customer accounts. Providing a tag sales and cash replenishment program in this manner would enable the PRHTA to serve the unbanked and underbanked community in Puerto Rico in a user-friendly and cost-effective manner.

To start the program, an agreement was reached with Texaco, which had over 250 retail outlets on the island, as the initial distribution provider. Several other retailers quickly joined the program. A commercial package was prepared that included a tag, a mag stripe card, and an anonymous account pre-established for each tag. The commercial package also included instructions on how to install the tag on the vehicle, track the balance on the account, and replenish the account with cash.



A commercial package was prepared that included a tag, a mag stripe card, and an anonymous account pre-established for each tag.



To participate in the ETC program, all the motorist had to do was purchase this commercial package for \$20; and, when the cashier rang up the sale, the account was activated by the toll operations center (TOC) and \$10 was credited to that account in near-real time. The remaining \$10 covered the cost of the tag, its packaging and distribution. Motorists could then install the tag on their vehicles and use the ETC lanes on the toll roads immediately.

When the account required replenishment, the motorist could visit one of Texaco's retail outlets on the Island, swipe the mag stripe card linked to their account, and replenish their toll account with cash. Motorists were advised that they could provide their personal billing information and a credit card to have their account updated automatically, but were not encouraged to do so.

The anonymous replenishing operation was enabled by an app at the POS terminal at the gas station. The mag stripe card would identify the motorist's account and generate a credit in his or her account. The gas station would keep the cash and the TOC would receive the cash via a debit to the gas station account.



This program was so successful that by 2003 PRHTA expanded its operation to other toll plazas on the island and included heavy vehicles in the ETC operations.



The AutoExpreso[®] program initially served just autos and light-duty trucks in a roll-through operation mode on dedicated and mixed-use lanes at major toll plazas in the SJMA. This program was so successful that by 2003 PRHTA expanded its operation to other toll plazas on the island and included heavy vehicles in the ETC operations. Within two years of its introduction, the AutoExpreso[®] program served more than 50% of the peak period traffic using the PRHTA's toll facilities in the SJMA.¹⁴

By 2005, the PRHTA had solved its congestion problem at its major toll plazas and was already planning to add toll bypass lanes and reduce the number of cash toll lanes at its larger toll plazas. Several other retail chains were also hosting app-enabled POS terminals, activating accounts, distributing toll tags, and accepting cash replenishments on toll accounts. Over two million tags were in active operation on the island.¹⁵

¹⁴ Author's unpublished project data from AutoExpreso[®] program.

¹⁵ Ibid.

There was also an unanticipated benefit of this innovative ETC operations plan designed specifically for the unbanked and underbanked community. The AutoExpreso® ETC program focused on collecting revenue. If patrons kept their accounts current, the PRHTA recognized that it had no need to capture and maintain their billing information—a burden relief that most toll providers would welcome. Regular (banked) toll customers could choose the convenience of providing their vehicle, license plate, and personal billing information, and automatically replenishing their account via a credit card or ACH transaction. However, if they chose to do so, any AutoExpreso® program customer could participate anonymously using the distributed cash-only accounts. The customer’s anonymity was lost if they let the funds in their account drop to an amount insufficient to pay the last toll. That condition triggered a violation notice by identifying the account from the license plate images generated by the system.



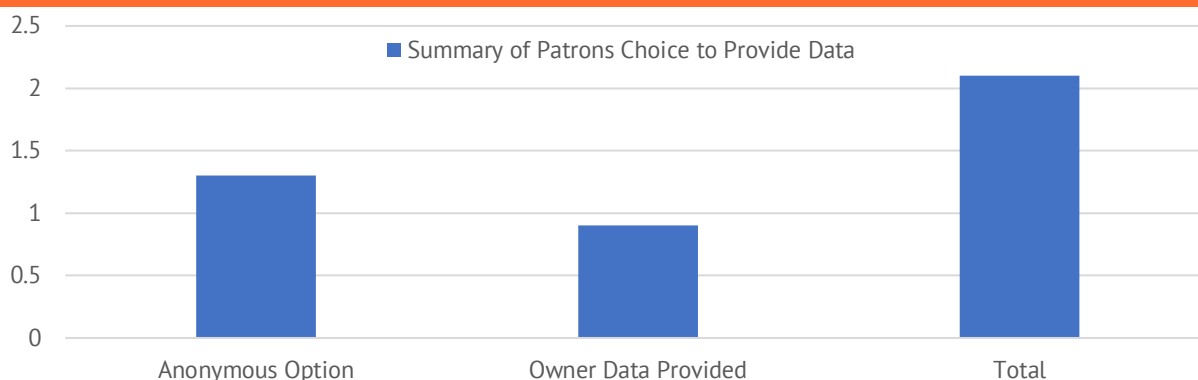
There was also an unanticipated benefit of this innovative ETC operations plan designed specifically for the unbanked and underbanked community.



Unlike other ETC programs that had to establish special, often cumbersome, enrollment and operational rules to provide an anonymous account option, the ETC distributed-cash account became the default option in the AutoExpreso® program. This concept was so widely embraced by motorists in Puerto Rico that when the AutoExpreso® Program reached 2.1 million active toll accounts, 62% of those accounts were being used to collect tolls anonymously.¹⁶

¹⁶ Ibid.

FIGURE 4: NUMBER OF AUTOEXPRESSO® PATRONS IN PUERTO RICO CHOOSING THE ANONYMITY OPTION (IN MILLIONS)



Source: Author's data from AutoExpreso program.

The AutoExpreso® program has recently encountered difficulties with violations enforcement. A systems upgrade installed by a group licensed to operate a portion of the program does not meet all operating requirements. An RFP expected to be released soon should resolve this problem.¹⁷

3.2

FLORIDA'S SUNPASS® PROGRAM

SunPass® is the Florida DOT's ETC program on all Florida's toll roads and express lanes, as well as on most toll bridges in Florida. SunPass® can also be used to pay for parking at SunPass® Plus Parking facilities and on a growing number of out-of-state toll roads.

In 2010, FDOT introduced a distributed tag cash replenishment program similar to the AutoExpreso® ETC program in Puerto Rico, making use of BlackStone "Touch-n-Buy" touch-screen terminals. These bright red machines fulfilled multiple purposes at nearly 600 locations around Florida near SunPass® facilities.¹⁸

The program has since been expanded. Customers can now purchase SunPass® tags at over 3,100 retail locations, including several grocery stores, pharmacies, and convenience stores. Tags can also be purchased at some Florida welcome centers, visitor centers, rest areas, and county tax collectors' offices.¹⁹

¹⁷ Author discussions with several people still actively involved in the AutoExpreso® program, April 2021.

¹⁸ "End of Cash on Florida Tollroads Sees New Off-road Cash Facilities," *Toll Roads News*, 25 June 2010.

¹⁹ SunPass®, <https://sumpass.com>, (18 February 2021).

To have a SunPass® prepaid toll account customers must purchase, activate, and install a SunPass® Portable or a SunPass® Mini Transponder on their vehicles. A deposit is required for account activation. Upon activation, a minimum replenishment is established for when the account's value drops down to a pre-established threshold. Customers can replenish their accounts via a credit or debit card, through an ACH (checking/savings) transaction, cash, check, or money order. Unlike the AutoExpreso® program in Puerto Rico, the customer's personal information, as well as the vehicle and licensing information housing their tag, is recommended at activation. Nevertheless, since this program provides a user-friendly, anonymous option for cash replenishment, it provides cost-effective access to SunPass® for the unbanked and those customers who prefer to avoid automated replenishment programs.



Upon activation, a minimum replenishment is established for when the account's value drops down to a pre-established threshold. Customers can replenish their accounts via a credit or debit card, through an ACH (checking/savings) transaction, cash, check, or money order.



3.3

E-ZPASS® RELOAD CARD (NEW HAMPSHIRE DOT)

The E-ZPass® Interagency Group²⁰ is the largest toll interoperability network in the world, including 39 member agencies in 17 states from Maine to Illinois to North Carolina. Over 43 million toll tags collect \$13.4 billion in annual toll revenues, and \$5.2 billion of that revenue is transferred among agencies through its toll reciprocity programs.

To open an Individual E-ZPass® Account, a customer must enroll in the E-ZPass® program, provide the personal contact, billing, and vehicle information requested, and agree to pay all costs incurred by E-ZPass® and all agencies involved in providing E-ZPass® services to collect any monies due under the terms of the E-ZPass® Agreement. Customers must also pre-pay an amount sufficient to pay anticipated charges to their account for a one-month

²⁰ <https://www.e-zpassiag.com>

period. Customers must also replenish the account when the balance decreases to or below the established replenishment point for their account plan. Customers may replenish their accounts by Authorizing *E-ZPass*[®] to automatically charge their credit card or withdraw funds from their checking account, or pay via check, money order, or cash at an *E-ZPass*[®] Customer Service Center.



Any customers can use the cash pre-payment and replenishment option, including unbanked and underbanked customers. However, this option is not user-friendly for those without (or preferring to avoid) a conventional banking solution.



Any customers can use the cash pre-payment and replenishment option, including unbanked and underbanked customers. However, this option is not user-friendly for those without (or preferring to avoid) a conventional banking solution. For the anonymous option it also requires that the individual, or a proxy, visit an *E-ZPass*[®] Customer Service Center to conduct the account replenishment transaction. Interoperability (access to all *E-ZPass*[®] participating toll facilities)—a major benefit of the *E-ZPass*[®] program—may also not be available.

The New Hampshire Department of Transportation (NHDOT) has recently overcome this challenge by introducing an *E-ZPass*[®] Reload Card—a reusable mag stripe card that can be linked to a New Hampshire *E-ZPass*[®] account. Customers can purchase and add an initial and subsequent reload amounts from \$10 to \$500 at 28 7-Eleven convenience stores and 38 CVS Pharmacies throughout New Hampshire for a \$1.50 service charge. Once the customer links their Reload Card to their NHDOT *E-ZPass*[®] account by calling the phone number on the back of the card, additional cash replenishments can be added to their account in the same manner, and the funds will be credited immediately to the designated tag's account.²¹

²¹ *Cash Reload Card Now Available For New Hampshire E-ZPass Customers*, New Hampshire Department of Transportation, News Release, <https://www.nh.gov/dot/media/nr2021/20210125-ezpass-reload-card.htm>, 25 January 2021.

3.4

FASTRAK[®], METROPOLITAN TRANSPORTATION COMMISSION

Fastrak^{®22} is the ETC solution in the San Francisco Bay area. The Golden Gate Bridge and seven bridges in the San Francisco Bay Area owned by the state of California and operated by the Bay Area Toll Authority no longer accept cash at the bridges. Cash toll collection was discontinued in March 2020 in response to COVID-19.

To use the Bay Area Bridges one must either:

- have a Fastrak[®] account and a valid tag attached to their vehicle,
- have a License Plate Account, or
- participate in the One-time Payment Program.

Failure to participate in one of these options will result in the vehicle owner getting a toll violation notice.

Fastrak[®] accounts, license plate accounts, one-time payments, and violation notices have several payment options, including cash at one of several PAYXCHANGE retail locations or Touch-n-Buy self-service kiosks in the Bay Area. Some authorized merchants collect a convenience fee for cash replenishment transactions. However, Fastrak[®] offers a user-friendly cash deposit and replenishment option for the unbanked, those who prefer not to use an automated replenishment option, and those who desire an anonymous account.



Fastrak[®] offers a user-friendly cash deposit and replenishment option for the unbanked, those who prefer not to use an automated replenishment option, and those who desire an anonymous account.



²² *Paying Bridge Tolls*, <https://511.org/driving/bridges/paying-tolls>, 18 February 2021.

3.5

TAPNPAY

The North Texas Tollway Authority (NTTA) has allowed drivers not enrolled in their ETC program, TollTag®, to pay their tolls via a program called ZipCash—a pay-by-mail invoicing solution. In 2020, NTTA introduced a service called tapNpay,²³ which allowed ZipCash users to pay their invoices on their cell phone bill. Verizon Wireless currently supports the tapNpay program, and TMobile and AT&T are currently integrating tapNpay into their cell phone billing systems.

In 2020, NTTA introduced a service called tapNpay, which allowed ZipCash users to pay their invoices on their cell phone bill.

Once motorists have paid their first invoice through their carrier phone bill, they are registered to have all future toll charges go directly onto their cell phone bill. This option offered several benefits to the NTTA, including eliminating the need for NTTA to send those enrolled in the tapNpay program monthly paper invoices. NTTA also no longer needed to worry about keeping billing information current for customers in the tapNpay program if they retained their Verizon account in good standing. The fact that most people give priority to paying their phone bill before other expenses is an added benefit.

The tapNpay program is also a user-friendly option for the unbanked and underbanked communities. There is no need for customers to have a smartphone, or to find the tapNpay app, download it and keep it current on their phone. Since tolls are posted to the Verizon Wireless account via the vehicle's license plate, the customer's phone does not even have to be on or in the vehicle for the system to work.

The tapNpay program also imposes no service charges on the consumer. Payments to Verizon Wireless accounts can be made in cash at Verizon Wireless outlets and a variety of other retail locations. Though some retail locations charge a service fee for this convenience, it is typically a flat fee the person would incur when paying their phone bill whether they participate in the tapNpay toll payment program or not.

²³ tapNpay, www.tapNpay.com, 18 February 2021.

PART 4

IMPLEMENTATION REQUIREMENTS

Solutions to serve the unbanked and underbanked toll road customers that are simple, easy to explain to the public, implement and maintain, and cost-effective in their deployment are now feasible. Implementation requirements vary based on the application, socio-economic characteristics of the local population, and local opportunities and constraints. Industry best practices should always be followed. Since these best practices vary from one application to another, a knowledgeable consultant is advisable.

4.1

TYPE OF TOLL ROAD PROJECT

For brand new (greenfield) toll projects, a program like those described in Part 3 should be included in the toll systems and operations contract during procurement. Performance-based contracts with realistic penalties for failure to meet contractual requirements, and value-based rewards for exceeding contract requirements are highly recommended. Most solutions for the unbanked and underbanked communities can be software-based and sustained through operational procedures that are integrated with the toll system design and operations process.

For all projects, including system upgrades on *existing* toll roads and bridges, solutions for the unbanked, those that prefer to not use an automated replenishment program, and those that desire anonymity are basically the same as for a greenfield project's requirements.

4.2

GENERAL REQUIREMENTS

Distributed tag sales and cash account replenishment programs can usually be integrated with existing POS terminals at participating retail outlets. Unique implementation challenges for operations that serve the unbanked and underbanked communities typically include the following functions:

- Updating the toll operations plan to include financial processes to support the unbanked and underbanked communities.
- Integrating the toll retail outlet financial reporting systems to support periodic reconciliations and anticipated auditing functions.
- Preparing and distributing, as well as controlling the inventory of, a commercial package to support the program(s) being implemented that includes a mag stripe card to link the initial cash deposit and subsequent replenishment payments to the appropriate ETC account, and/or a tag, and an anonymous account pre-established for each tag.

All commercial packages should also include instructions on how to manage the toll account, including how to track the balance, replenish the account with cash, and install the tag on the vehicle (where appropriate).

Partnerships are always important, and partners should be selected carefully. Partners must understand their specific roles in the program and do what they do best. Prompt reporting of both road-side toll transactions and account deposit and replenishment transactions to the financial management systems is also important, especially concerning a toll operations interoperability program. A continuous improvement program can also be useful.

4.3

MINIMIZING OPERATING COSTS

First, and foremost, the ETC program's objective should be to collect revenue in a user-friendly and efficient manner. This includes decreasing the overall costs of collecting toll revenue compared with manual processes. Other benefits of ETC programs include eliminating traveler delays at tolling points and greatly reducing accidents involving both customers and toll operations staff. Environmental benefits include avoiding long lines of vehicles idling while waiting to pay their cash tolls.

User-friendly options for serving the unbanked, those that prefer to avoid automated replenishment programs, and those that desire anonymity can be more expensive to operate than those serving the rest of the community. Additional costs are incurred in sustaining and auditing that aspect of the toll operation. Aggressively managing these costs by selecting operations criteria that require minimal additional processing can be critically important. Operational options that could significantly increase operating costs include use of franchised retail outlets and frequent-user programs.



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Alternatively, introducing a toll-prepayment program to serve the unbanked, those that prefer to avoid automated replenishment programs, and those that desire anonymity benefits the toll operator by reducing toll collection costs from many of these customers. Collecting tolls in a post-payment operation typically increases the cost of operations by 15% to 20%, or higher.

Primary criteria for keeping systems and operating costs at a minimum include:

- Requiring motorists to have a tag on their vehicle registered to a valid, pre-paid ETC account.
- Developing and implementing a public information campaign, so the unbanked and underbanked communities (and others who may choose to use this payment option) know how to most easily participate in the ETC program. (This is one of the more critical steps in the deployment process), and
- Avoiding vendors that impose fees on ETC replenishment efforts.

PART 5

CONCLUSION

The introduction of ETC and the recent elimination of cash options at many toll facilities could create problems for the unbanked, those that prefer to avoid automated replenishment programs, and those that desire anonymity. The pandemic has also likely increased the size of the unbanked community and others desiring a cash toll replenishment option, especially in urban areas where many tolled facilities exist.

Providing everyone with readily available and affordable access to the transportation network is important to sustaining our economy. But participating in the benefits of ETC and AET services can be more difficult for those who do not have ready access to conventional financial services.

Several toll providers have implemented solutions that are successfully serving these communities. These case studies show that cash-based replenishment solutions provide for cost-effective and user-friendly access for the unbanked to the new, unmanned AET and ETC transportation systems. They may also appeal to the population in general by providing motorists with a user-friendly cash replenishment option that results in greater use of tolled systems.

ABOUT THE AUTHOR

Daryl S. Fleming is president of The eTrans Group, Inc, which provides consulting services to the transportation industry. He led the advisory team that implemented the AutoExpreso ETC program in Puerto Rico. Earlier in his career, he was deputy program manager for Hughes/Raytheon HTMS to develop and implement all-electronic tolling for Highway 407 ETR in Toronto—the world’s first fully automated toll road. He played major advisory roles at the Transportation Corridor Agencies and for the SR 91 Express Lanes program in Orange County, California.

He received his Ph.D. and MScE in transportation planning and engineering from the University of New Brunswick, Fredericton and his BScE in civil engineering from the University of Maine, Orono. He was a registered professional engineer in several states and in Canada for more than three decades.

