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The best of both worlds: ATPM as a complement for AET

Compiled by: [A-to-Be®](#) | [Mobility-Beyond](#)

In light of declining fuel taxes, **the U.S. has a critical need to analyze its transportation revenue policies and look at viable alternatives to provide sustainable funding for maintenance, rehabilitation, congestion management, and safety of roads.** Without a sustainable revenue stream, the backlog of un-met statewide development and deferred maintenance needs will grow. At the same time, implementing new transportation revenue systems will create inherent risks, costs, and challenges.

Notably, society has relied on the fuel tax as the mainstay of highway funding for over 80 years, providing a fairly reliable funding stream. However, the public's demand for sustainability – which the market has addressed through fuel efficient vehicles – has rapidly decreased the usage of fossil fuel and consequently of the national fuel tax revenues. Since 2000, **fuel tax revenues have declined significantly as vehicle fuel economy has improved and inflation in the United States has eaten away revenues** without proportionate tax increases to make up for these factors. While the average new vehicle fuel economy was once stable at about 20 mpg, the fleet average for recently manufactured vehicles has reached a new record high of 25.6 mpg. The only way to make up for these revenue losses is to toll the roads that are used, charging society directly for their upkeep.

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Tolling, in its many forms, continues to be the most effective method of transportation funding. While society is traditionally averse to increases or the creation of new taxes, which can be construed as the creation of new tolling systems, **every day citizens also understand the value of paying for the road in some way or form, as they can see their infrastructure improving and transportation needs being funded.** Beyond the concern of tolls impacting an individual or company's pocketbook, society also worries about tolling for many reasons, including traffic jams at toll booths, sharing of personal information, form of payment, and efficiency of transportation systems.

Concurrently, **states must also be concerned about how to implement tolling in order to prevent angry constituents and system payment leakage,** while collecting monies efficiently. Moreover, tolling schemes must be inclusive and equitable, **not assuming that everyone will be able to join a single payment method** and ensuring that enforcement processes are in place.

A-to-Be believes that **the best way for states to address both society and government concerns is through marrying All Electronic Tolling (AET) with Automatic Toll Payment Machines (ATPM)**. States are no longer adding additional toll booths operated by humans, they are instead tearing down booths to create traffic efficiencies and increase patron's convenience.

AET tolling is a tag or image-based system, in which drivers have a toll tag, or their license plates are read by an Automatic License Plate Reader (ALPR). These cashless tolling systems are popular because they **allow cars to travel through lanes at highway speeds by simply passing under a gantry**. Quickly, AET collects and sends transaction records to a backoffice system for processing. According to the U.S. Department of Transportation, **there are over 100 million toll tags nationwide, and these devices tend to give operational accuracy of about 98%**. Meanwhile, current ALPR accuracy is about 95%. While these systems are able to record transactions quickly and accurately, collection of the actual charges is what creates problems for toll operators. Sometimes, **the cost of recovering the funding**, especially if the driver does not have a transponder, **is more expensive than the toll itself**. Regardless of increased efficiency of backoffice software and improved customer service centers, many citizens just aren't ready for this form of tolling.

Because AET is based on debit account management, it inherently invites social exclusion. **To participate in AET, individuals must have access to a bank or be able to establish good enough credit for a credit card**. According to the National Congressional Research Service, the highest percentages of AET users

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nationwide is about 75–82%. The remaining individuals either do not have credit, are low income families who operate only on a cash basis, are immigrants who do not have access to banks, are infrequent users of tolls so avoid the bills in the mail, are technophobes and do not wish to be tracked by the government, or are visitors passing through a state and don't intend to be tracked down by a backoffice to make payment. For example, according to the FDIC, **25% of the U.S. population is completely unbanked**. All of these drivers may pass through an AET system and dodge payment indefinitely, creating system leakage and consequently inequity in relation to those who pay regularly.

Moreover, **as hackers are on the move, AET toll collection has created new risks for personal privacy and financial information** of the institutions

processing payment. As cyber security continues to be a mega trend, some citizens would rather opt for cash payment systems that are foolproof when it comes to identify theft. On the other end of the spectrum, **millennials continue to use apps as methods of payment** – like apple pay – and may someday prefer only to be tied to their smartphones, eliminating the need for a wallet and credit card all together.

We believe that **providing choices for methods of payment will create greater customer satisfaction** as people adapt to the concept of tolling. Toll policies that implement **user choice of payment methods will enhance privacy protection and help prevent social exclusions**. ATPMs in specific roadway locations, coupled with AET, allow for individuals to pay by cash, credit card, debit card, or smart phone interface if they choose to pass through a tolling point. Alternatively, customers can enroll in AET systems and pay the bills or have funds drawn off of their payment accounts as they pass through gantries. Both systems allow both options for consumers simultaneously.

ATPMs, strategically placed throughout roadways, typically in shoulder lanes where they do not block traffic, allowing for Open Road Tolling, **expand payment options and give common interface for drivers** including physical receipts in real time, **and are more cost effective than manual tolling lanes**. While most toll lanes will be AET nationwide, in order to maintain steady traffic flow, **non-AET lanes can operate with better toll servicing than manual toll operations through the ATPM, considering the lowering demand for cash alternatives**. ATPMs allow technology to evolve regarding tolling, while still maintaining choices and creating more efficient interface replacement at archaic toll booths. Meanwhile, standardized ATPM equipment can be interoperable with overall backoffice systems, allowing collection that preserves consumer choice.

Overall, **the future will belong to the most cost-effective toll agencies who adopt both AET and non-AET approaches to their toll roads**. Application of both will help transition a toll agency into the future and **provide the means to adapt and constantly provide evolutionary improvements** to their systems to keep pace with similar evolutionary technical improvements and usages in their daily lives.

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Read more about our state-of-the-art **Automatic Toll Payment Machines** for a 24/7 service. With versatile configurations, multiple payment methods and low operation costs, it combines security and high-performance.

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